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PRINCIPLES OF PENICILLIN THERAPY

*The Address in Medicine before the Royal College of Physicians and Surgeons of Canada**

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THE discovery of penicillin by Sir Alexander Fleming¹ and its introduction as a practical therapeutic agent by Sir Howard Florey^{2, 3} have provided an anti-bacterial agent of unprecedented potency. This new drug has certain great advantages over other compounds of similar action. It is non-toxic. It is effective in the presence of pus, tissue autolysates or large numbers of bacteria. It is remarkably potent, being active in a dilution of one part in 80 million.‡ There are, however, limitations to its usefulness and for best results certain principles of therapy must be observed. These will now be considered.

Penicillin is efficacious only in treatment of diseases caused by susceptible micro-organisms.—In general it is highly effective against Gram-positive cocci, neisseriæ and spirochætes, and, to a lesser degree, against the heterogeneous group of Gram-positive bacilli. It is ineffective against Gram-negative bacilli, viruses, acid-fast organisms and the yeast-like fungi. Groups of common pathogenic organisms, divided according to their susceptibility to penicillin, are listed in Table I.

It must be noted, however, that no sharp line separates the sensitive organisms from those

that are resistant. Rather is there a gradual and irregular variation in degree^{3, 7, 10} from highly sensitive to quite resistant organisms. There are variations also in the sensitivity of different strains of the same species. In gen-

TABLE I.
GROUPS OF COMMON PATHOGENIC ORGANISMS LISTED
ACCORDING TO SENSITIVITY TO PENICILLIN

SENSITIVE TO PENICILLIN

Gram-negative diplococci

Meningococcus
Gonococcus

Gram-positive cocci

Streptococcus hæmolyticus
Other streptococci except
Streptococcus fæcalis
Pneumococcus
Staphylococcus

Gram-positive bacilli

B. Welchii
B. septicum
B. œdematiens
B. tetani
B. diphtheriæ
B. anthracis

Spirochætes of

Syphilis
Relapsing fever
Weil's disease
Vincent's infections

RESISTANT TO PENICILLIN

Gram-negative bacilli

B. typhosus
B. paratyphosus
B. dysenteriæ
B. coli
B. enteritidis
B. proteus
B. influenzae
B. pertussis
B. Friedländerei
B. tularemia
B. abortus (melitensis)
B. pestis
B. pyocyaneus
B. tularensis

Acid-fast organisms

B. tuberculosis
B. lepræ

Yeast-like fungi

Blastomyces
Coccidioides

Viruses

* Delivered at the fifteenth Annual Meeting, Ottawa, October 28, 1944.

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‡ One milligram of crystalline penicillin contains approximately 1,600 Oxford units. Standard sensitive strains of staphylococcus are completely inhibited by a concentration of 1/50 unit per c.c.

eral, pathogenic strains of pneumococci, hæmolytic streptococci, meningococci and gonococci are highly susceptible, and acute infections caused by these organisms almost invariably respond quickly to adequate penicillin therapy. Similarly, the majority of strains of staphylococci are completely inhibited by a concentration of 1/50 of a unit of penicillin per c.c., although a proportion as great as 10% may be resistant to much larger amounts, e.g., 6 units or more. There is greater variation among the anaerobic and non-hæmolytic streptococci; and the Gram-positive bacilli tend, on the whole, to be less sensitive. In this connection it should be pointed out also that penicillin is bacteriostatic only and not antitoxic. It has no effect on toxins produced by the Gram-positive organisms of diphtheria, tetanus and gas gangrene and, therefore, has little value in treatment of these diseases.

The organisms listed as resistant will usually grow in media containing penicillin. There are rare exceptions, however, when individual strains are quite sensitive. Abraham and Chain demonstrated in 1940⁴ that resistant organisms were capable of producing an enzyme which would destroy penicillin. In cases from the various Services treated at Christie Street Hospital, Dr. Frieda Fraser found that all the resistant strains of staphylococcus and about half of the Gram-negative bacilli isolated would produce such a penicillinase, whereas sensitive strains failed to do so. This phenomenon has great practical importance. It stresses the necessity of using aseptic precautions in the handling of all penicillin preparations.

One must remember also that sensitive micro-organisms grown in small but increasing concentrations of penicillin may adapt themselves³ to the drug and become resistant. This may also occur *in vitro* under inadequate therapy.

It is obvious then, that the sensitivity of the infecting organism to penicillin should be determined whenever possible and this information used as a guide to dosage. This is particularly important in the treatment of chronic infections and of diseases caused by less sensitive organisms.

Importance of rate of growth of the infecting organism.—The action of penicillin is one of bacteriostasis, probably interference with cell division.^{3, 5} Brief contact does not kill. The dramatic effects of penicillin therapy are, there-

fore, demonstrated when the organisms are multiplying rapidly, as in acute infections. In chronic diseases the results are much less spectacular; the inflammatory lesion may subside without complete elimination of organisms lying dormant in the tissues (actinomycosis, chronic osteomyelitis, subacute bacterial endocarditis, latent syphilis, etc.). Therapy of longer duration is, therefore, required; even long continued administration may fail to prevent a recurrence.

To be effective penicillin must be brought into contact with the infecting organism in the tissues.—Lesions involving soft tissues are easily reached by systemic therapy using either the intravenous or the intramuscular route. Since penicillin does not pass readily into the thecal, pleural or articular spaces, however, infections in these regions must be treated by local injection of solutions of penicillin into the affected cavity as well as by systemic administration.

In a number of infections, also, the organism persists in areas not easily reached by the circulation—in sequestra, blood clot, or other necrotic and avascular tissues. For successful treatment of such infections adequate surgical measures are often essential. These include the draining of large abscesses, removal of sequestra, saucerization of bony cavities, débridement of wounds, etc.

Infections of the skin commonly respond readily to application of penicillin creams by which an effective surface concentration is easily maintained for the required length of time. When deeper structures such as the sebaceous glands or hair follicles are involved, however, it may be necessary to use systemic administration in addition. Similarly, infections of mucous membranes respond to such topical applications as can maintain an effective concentration of the drug. When this is not practicable systemic therapy must be used.

An adequate concentration of penicillin must be maintained in the lesions until its work is accomplished.—Since penicillin administered in systemic therapy is rapidly excreted by the kidneys it is necessary, in order to ensure effective therapy, that it be given by a continuous drip or by injections repeated at frequent intervals.^{2, 6, 9} The continuous administration of 100,000 units per day will usually maintain a concentration in the blood above 0.1 units per c.c. This level is adequate for the treatment

of most infections caused by sensitive organisms. After a single injection of 15,000 units of penicillin, on the other hand, the concentration in the blood rises quickly far above 0.1 units per c.c. but soon falls rapidly until at the end of three hours only a trace or none can be demonstrated. At present it is an open question whether it is more effective to maintain a constant bacteriostatic serum level than to have a series of high peaks following repeated injections, with intervening periods when the concentration of penicillin is too low to be measured. Using the dosage commonly employed to date (120,000 units per day, increased to 240,000 units or more as required when the organism was less sensitive and in fulminating cases), we have not observed any difference between the results of continuous therapy and those following the administration of the same total daily dose by injections repeated at three- — and occasionally four- — hour intervals.

An effective concentration of penicillin in thecal, pleural or articular spaces is easily maintained by injections, every twenty-four to forty-eight hours, of appropriate amounts of a solution of penicillin containing 1,000 units per c.c. For instance, in 19 specimens of empyema exudate aspirated twenty-four hours after the last injection of 50,000 units of penicillin, Dr. Fraser found variation between 0.5 and 16 units per c.c. Similarly, a concentration of penicillin in the spinal fluid as high as 8 units per c.c. was found twenty-four hours after the intrathecal injection of 10,000 units. These levels are well above the concentration that it is practicable to maintain in the blood.

Duration of therapy. — To be effective the therapy must be continued until the body has destroyed the causative organisms. The total duration of therapy required varies greatly in different conditions, being shorter in acute infections involving readily accessible tissues and longer for chronic lesions not easily reached by systemic or other therapy. Thus acute gonococcal urethritis is cured by administration of penicillin over a period of fifteen hours. Similarly, Vincent's gingivitis and pharyngitis usually respond to one day's treatment. For most acute severe infections of soft tissue, such as cellulitis and bacterial pneumonia a few days of therapy is required. In septicæmias and meningitis the necessary duration varies, per-

haps because of isolated foci, and it is wise to continue treatment for seven to ten days or more; too early cessation leads to relapse. The early lesions of syphilis⁸ respond quickly to penicillin therapy which, administered over a period of eight days, appears to be curative. Attempts to shorten the duration have led to a higher proportion of failures, and it is possible that for best results longer therapy may be required. It remains to be seen whether spirochætes persisting in the body in cases of latent syphilis can be eliminated. Similarly, the effectiveness of penicillin therapy, even when long continued, in cases of subacute bacterial endocarditis has not yet been determined. It is known, however, that maintenance of an effective blood concentration for long periods will fail to destroy the staphylococci persisting in sequestra in cases of osteomyelitis, although the discharge may have ceased and signs of active inflammation subsided.

Importance of associated medical and surgical measures. — The administration of penicillin should not be depended upon to cure all cases, even of acute infections caused by sensitive organisms, diagnosed at any stage of the disease. Care must be taken to make the diagnosis early and to give penicillin before irreparable damage has been done; to protect damaged tissues and give supportive medical treatment; to evacuate collections of pus and to use necessary medical and surgical measures that may at times be more important than the administration of penicillin.

Early diagnosis and prompt institution of penicillin therapy are particularly important in cases of fulminating infections, meningitis and hepatitis. For instance, it is possible for patients to die of pneumococcal meningitis after the organisms have been eliminated by systemic and intrathecal penicillin therapy administered too late to prevent irreparable damage. Similarly serious liver and kidney damage in Weil's disease may persist after destruction of the leptospiræ.

Rest to damaged tissues and organs, prevention of dehydration, relief of pain and general good medical care should always be assured.

In septicæmias and pyogenic infections the search for collections of pus should go hand in hand with administration of penicillin. Fever and malaise are known to continue after destruction of the infecting organisms in abscess cavities which require drainage. Adequate re-

peated aspirations must be carried out in cases of empyema after the purulent exudate has become sterile; the empyema cavity must also be obliterated.

In the prophylactic treatment of wounds adequate surgical treatment is more important than the administration of penicillin which cannot penetrate blood clot, necrotic or avascular tissues. In chronic osteomyelitis, also, penicillin should be used only as an adjunct to such surgical procedures as sequestrectomy, removal of foreign bodies, drainage of abscess or saucerization of bony cavities. Similarly early administration of antitoxin is of paramount value in treatment of diphtheria and tetanus, whereas, the use of penicillin to eliminate the infection is of relatively little importance.

Dangers of penicillin therapy.—There are no known contraindications to penicillin therapy. The mild toxic effects formerly noted—pain on injection, thrombosis of the vein being used for continuous intravenous therapy, nausea, vomiting, fever, general malaise and urticaria—are seldom seen when purer preparations are administered. Up to the present time the development of sensitivity to the drug has not been an important problem, although urticaria following its administration continues to be encountered occasionally.

There are, however, two real dangers of penicillin therapy. One is the danger of spreading infection by the contamination of penicillin solutions with resistant organisms; the other is the placing of too great reliance on penicillin to the neglect of diagnosis and of medical and surgical care.

RESULTS OF PENICILLIN THERAPY

The importance of the principles of therapy may be illustrated by a brief discussion of some of the results obtained in various types of cases treated in the Services. All the patients were personnel of the Armed Services or Department of Veterans' Affairs. They were treated in various centres across Canada by medical officers of the Army, Navy, Air Force or Department of Veterans' Affairs with a limited supply of penicillin distributed through the Joint Services Penicillin Committee. At first the use of penicillin was restricted to the treatment of serious infections and the investigation of its value in gonorrhœa and chronic osteomyelitis. More recently it has been possible to supply the drug

for administration to any patient that will be benefited by its use. Systemic therapy was used throughout except in some of the cases of empyema which were treated by injections into the pleural cavity alone and some cases of skin disease treated by topical application. The dosage usually used was 120,000 units per day. In cases of meningitis 10,000 units were given each day in addition to routine systemic administration.

Septicæmias.—Recovery has occurred following upon administration of penicillin in almost all the cases of streptococcal and staphylococcal septicæmia treated. Surgical drainage of abscesses was occasionally an important adjunct to the therapy. The fatal cases comprised one with a fulminating septicæmia and two cases complicated by acute endocarditis, a lesion in which the organisms are relatively inaccessible to penicillin.

Meningitis.—Approximately two-thirds of the patients suffering from meningitis caused by streptococci, staphylococci, or pneumococci have recovered. The fatalities included cases that were moribund at the beginning of penicillin therapy and those complicated by brain abscesses.

Acute soft tissue infections.—The results of systemic penicillin therapy in these readily accessible lesions have been dramatic. Cases of cellulitis, Ludwig's angina, acute severe sinusitis with or without complicating orbital cellulitis, bacterial pneumonia and acute lung abscess have recovered in a few days. In a few instances persisting fever led to recognition of a local abscess which required incision. Occasionally the response in patients with lung abscess was delayed until drainage via the bronchus had been established.

Empyema.—Intrapleural injection of 50,000 units of penicillin every second day for four or five doses has usually led to elimination of the infecting organisms. This is more certainly accomplished, however, when systemic therapy is also given. Repeated careful aspiration of the exudate, even after it had become sterile, was found necessary to permit full expansion of the lung and to prevent excessive thickening of the pleura with resultant fixation of the diaphragm. Surgical drainage was undertaken when the infecting organism persisted after the fourth injection of penicillin or when the pus was loculated or too thick to be withdrawn through a needle.

Gonococcal urethritis in males.—Approximately 1,000 cases have been treated, using a total dosage of 100,000 units given in six injections at three-hour intervals. Recovery followed one such course in about 95% of the cases and almost all of the remainder responded to a second or third course. Attempts to complete the treatment in less than ten hours led to an increasing number of failures. Cases of greater chronicity, especially when complicated by stricture or prostatitis, sometimes required several days' treatment as did those with gonococcal arthritis.

Chronic osteomyelitis.—By systemic administration penicillin may be brought into contact with the staphylococci in the soft tissue lesions of cases of osteomyelitis. Accordingly there is a marked reduction and often cessation of discharge, and the sinuses may heal. Persistence of organisms in dead and avascular tissues, however, allows of later recurrence and surgical measures are therefore necessary for the removal of sequestra and adequate treatment of the fibrotic lesions. It is too early to pass judgment on the results of such combined treatment of approximately fifty cases of chronic osteomyelitis treated at Christie Street Hospital by Surg. Lieut. Cmdr. Hebb. Promising immediate results have, however, been obtained in cases that had had discharging sinuses for long periods.

Actinomycosis.—The immediate results in several cases of cervical actinomycosis were promising. The active lesion subsided; but even prolonged, vigorous therapy failed to prevent a recurrence, an illustration of the inability of penicillin to eradicate all the organisms lying dormant in low grade infections.

War wounds.—It was my privilege recently to make rounds with Colonel J. A. MacFarlane in a number of Canadian General Hospitals in England and to discuss with him the effect of penicillin therapy in the treatment of wounded men. Special interest was taken in those with compound fractures. These patients had all received regular injections of penicillin from the time they reached the advanced dressing station until it was discontinued at the discretion of the attending surgeon, usually after final surgical treatment in the general hospital. The absence of infection was striking. On admission of the patient one to seven days after injury, the wounds were usually clean and looked as if they had been inflicted recently.

Closure by secondary suture was frequently accomplished the day after arrival in hospital. Good healing followed and osteomyelitis appeared to be rare.

Colonel MacFarlane pointed out that, whereas the use of penicillin appeared to be a valuable adjunct in production of these excellent results, the most important factor was skillful, early, adequate surgical care.

CAUSES OF FAILURE

Wrong diagnosis is probably the commonest cause of failure of penicillin therapy. Administration of the drug has no effect on fever caused by such conditions as Hodgkin's disease, pulmonary infarction, coronary thrombosis, malignant disease with extensive necrosis, acute leukæmia, or the large number of diseases caused by resistant organisms.

Incomplete diagnosis, *i.e.*, failure to recognize complicating conditions such as abscesses or associated diseases, obviously accounts for a large number of imperfect results. There may be delay in recovery because of failure to drain a collection of pus, or death from unrecognized complicating bacterial endocarditis or brain abscess, or disappointment when it is found that the minor infection which responded to penicillin therapy was superimposed on a more serious disease.

Infections caused by penicillin-sensitive organisms may fail to respond if therapy is started too late or is imperfectly carried out. The penicillin solution may have deteriorated, the dosage may have been inadequate, the treatment given only intermittently or for too short a time to ensure effective bacteriostasis. Too early cessation of therapy may allow of recurrence of the disease after an apparent recovery.

When the organism is less sensitive to penicillin larger amounts are required to effect a cure. The use of ordinary dosage may then not only fail to control the infection but may allow the infecting organism to become resistant to concentrations of penicillin greater than can be attained in the practical therapy. It is important, therefore, whenever possible, to measure the sensitivity of the organism to penicillin and to use this knowledge in the regulation of dosage. When bacteriological control is not attainable the dosage should be doubled or trebled if the patient is not doing well.

SUMMARY

Penicillin is the most potent antibacterial agent yet produced. Its usefulness is limited, however, to the treatment of infections caused by penicillin-sensitive organisms, and its most dramatic effects are demonstrated in treatment of active lesions.

To be effective penicillin must be brought into contact with the infecting organisms in the tissues before irreparable damage has been done. An adequate bacteriostatic concentration must be maintained at the site of the infection until its work is accomplished.

The greatest dangers of this therapy are: (1) that too much reliance may be placed on administration of penicillin to the neglect of accurate diagnosis and of other needed medical and surgical measures; (2) and that, if handled carelessly, preparations of penicillin may become contaminated with penicillin-resistant organisms and infection be spread by their administration.

The results of penicillin therapy in acute lesions caused by hæmolytic streptococci, pneumococci, staphylococci, meningococci, gonococci, spirochaetes and other penicillin-sensitive organisms have been excellent. In subacute and chronic lesions, therapy of greater duration and sometimes larger dosage than that required in acute diseases have been productive of good results when it was possible to provide access of the drug to the infecting organisms.

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INSULIN AND DIABETES —
IN RETROSPECT AND IN PROSPECT

The Banting Memorial Lecture, 1945*

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IN this fourth Banting Memorial Lecture we again pay tribute to the accomplishments of our late colleague. As I wrote at the time of his death, his chief monument will be in the minds of young men stimulated by his brilliant and fearless career and in the hearts of successive generations of diabetics who owe so much to him. The number of more tangible tributes steadily increases. In addition to those in our own University† which are well known to you, there are: the Banting Memorial Lecture of the American Diabetes Association, the Banting Memorial Home for Convalescent Diabetics—projected by the British Diabetic Association, and the Sir Frederick Banting Memorial Hospital in Newfoundland erected by the Royal Canadian Air Force not far from the scene of the fatal accident.

There are few memorials which could give as much satisfaction to a scientist as the furtherance of researches which he has initiated. I am going to discuss certain aspects of the insulin studies this afternoon and I will take the opportunity, as we did in the introduction to the first paper on the antidiabetic hormone, to pay tribute to a few of the many deserving scientists who made possible the culmination here in Toronto of the prolonged search for the internal secretion of the pancreas.

I would commend to students of medicine Paul Langerhans' thesis, presented in 1869, and reprinted in English in 1937 with an introductory essay by Dr. H. Morrison. This young

* A part of the material in this lecture was later presented before the Société Canadienne d'Endocrinologie, in Montreal, and also to the Alpha Omega Alpha Honorary Medical Fraternity of the University of Western Ontario.

† The Banting Institute, the Banting and Best Department of Medical Research, the Banting Research Foundation and the Banting Memorial Lecture.

man, as a medical student, discovered the structures which were later named in his honour by Laguesse, the islands of Langerhans. Langerhans had no knowledge of the actual function of the islets and indeed it was not until a year after his death that von Mering and Minkowski proved that complete removal of the pancreas invariably produces diabetes in some species of animals. Von Mering died in 1908, but Minkowski lived for ten years of the insulin era and was appointed chairman of the German Insulin Committee, which received as a gift all the rights which the University of Toronto had acquired in Germany as a result of the discovery. After his work with von Mering in 1889, Minkowski tried very hard, as hundreds of others did, to detect the internal secretion in extracts of pancreas. One has a very keen sympathy for these scientific workers who so narrowly missed the goal toward which their own findings had partially paved the way. I have been told many times by German scientists of the meeting at which one of their members made, perhaps with some justification, an impassioned plea for recognition of the priority of his work on pancreatic extracts. Minkowski listened attentively and at the end rose and said very simply, "I too regret that I did not find insulin".

Minkowski, one of the great students of diabetes, died in 1931, but his wife lived to be a victim of Nazi oppression. It is a source of gratification to all of us that funds made available by the Insulin Committee of this University played a part in her rescue. After her arrival in South America she wrote as follows:

Executive Secretary, Insulin Committee,
University of Toronto.

After a very unhappy time I had to pass before I could leave, I finally just now arrived here, where I am happy to see my children after long years of separation.

It is only now that I got to know, that your great kindness enabled me to come here at all and to have the best possible opportunity for travelling in these times. So I have arrived in pretty good health, though with all my belongings, even luggage, lost.

My first action here is to thank you and the Insulin Committee from all my heart for helping me so generously in remembrance of all my husband once did for medical science and mankind.

I remember the great pleasure my husband had, when you came to see him. For him it was good luck, that he had not to live through these terrible years.

Very faithfully yours, MARIE MINKOWSKI.

In the last decade of the 19th century and in the first two of the present one, many workers in Germany, in France, Italy, Great Britain and the United States, whom I will not even attempt to name at this time, contributed in a great variety of ways to the knowledge of the diabetic state. Operative procedures for complete or partial pancreatectomy were elaborated.

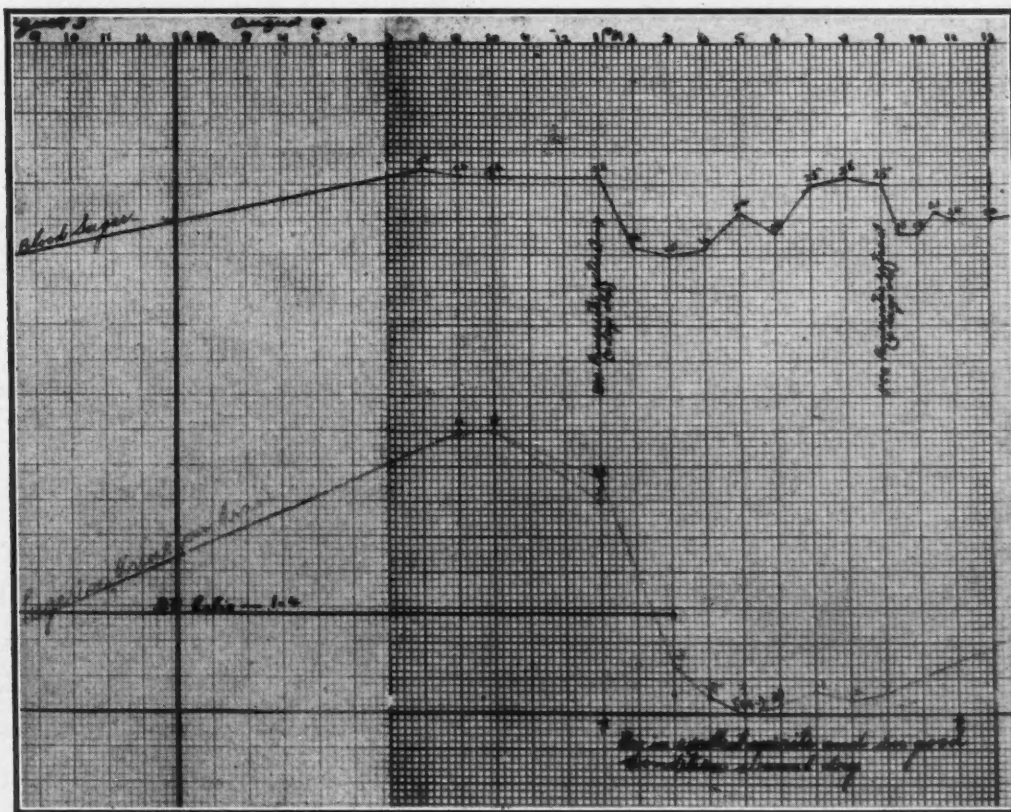


Fig. 1.—Chart showing effect of early insulin preparation, Banting and Best, 1921.

The effects of tying the pancreatic ducts, which produced a rapid degeneration of the cells which make the external secretion and a slower disappearance of the islands of Langerhans, were studied. The technique of metabolic investigation was improved and advances of the greatest importance were made in the procedures for estimating sugar, ketone bodies, nitrogen, etc., in small amounts of blood. Thus in 1921 we had great advantages over previous investigators.

The details of Banting's initiation of the work and a description of the procedures which resulted in the isolation of insulin, are to be found in our early papers. They have been fully dis-

cussed in a number of lectures, some of which were given by Banting. His address in Stockholm when he received the Nobel Prize in 1925, or his Cameron Prize Lecture, delivered in Edinburgh in 1928, provide excellent descriptions. A detailed and accurate account of the early work is also to be found in Professor J. J. R. Macleod's book on Carbohydrate Metabolism and Insulin, published in 1926. There are, of course, many interesting sidelights which have as yet been preserved only as rough notes or as a part of personal correspondence. These will some day be of historical importance, and could provide material for several lectures.

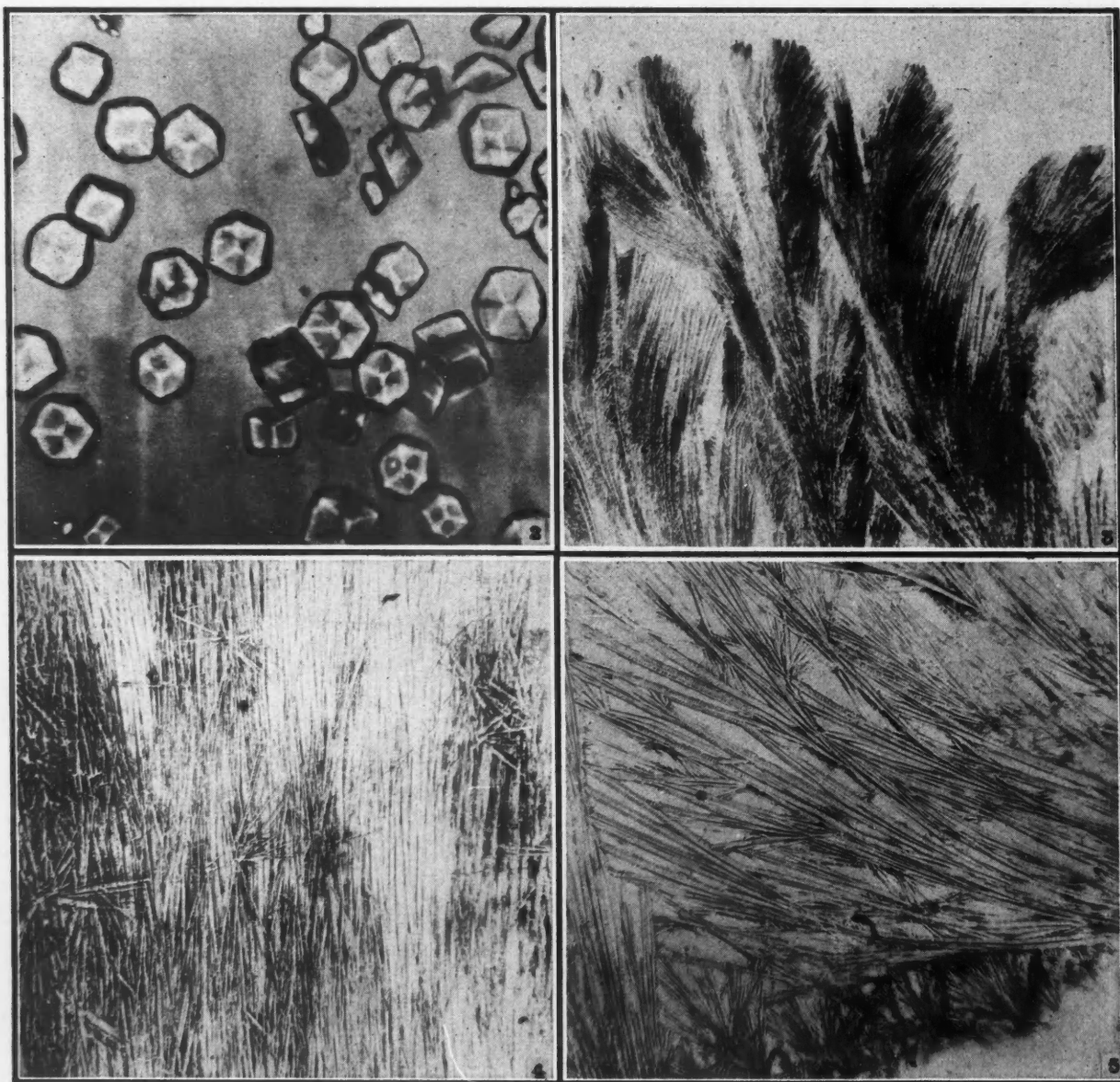


Fig. 2.—Insulin crystals prepared with zinc (from Scott). Fig. 3.—Insulin crystals prepared with piperidine (from Scott and Fisher). Fig. 4.—Insulin crystals prepared with normal amylamine (from Scott and Fisher). Fig. 5.—Insulin crystals prepared with isoamylamine (from Scott and Fisher).

PREPARATIONS OF INSULIN FOR THE TREATMENT OF DIABETIC PATIENTS

I would like this afternoon to outline very briefly the improvement in the insulin preparations from the first crude ones which we had available in 1921 to the pure products of today. In the preceding figure (Fig. 1) the lowering of blood sugar produced by one of the earliest extracts from the degenerated pancreas of the dog is illustrated and there are some relevant comments in Banting's handwriting. The impurities present in these extracts may have delayed the liberation of the insulin even when administered intravenously but this was much more apparent when similar material was given subcutaneously. The first extracts from normal beef pancreas, prepared with the modifications and improvements made by Professor Collip in the procedure which we originally used, had an appreciably longer duration of action than an equivalent amount of the purer insulin now available. I do not wish to imply that the early extracts were not effective in the treatment of depancreatized dogs or of diabetic people. They were amazingly good and a part of their effectiveness, when administered subcutaneously, was undoubtedly due to the gradual and therefore prolonged period of absorption of the potent material.

The natural goal of the chemist is to prepare substances in their purest form and insulin soon attracted the attention of a very competent group under the leadership of the late Professor J. J. Abel who obtained insulin in crystalline form in 1926 (Fig. 2). A little later my colleague of long standing, Dr. D. A. Scott, showed that these crystals are the zinc salt of the insulin protein. These zinc insulin crystals are made up of twin plaques which can be clearly seen as the crystals rotate. Crystalline insulin has been prepared not only with zinc but Scott and Fisher have successfully used other materials such as piperidine, normal amylamine and isoamylamine (Figs. 3, 4 and 5).

The first international standard of insulin adopted by the Health Organization of the League of Nations (which has brought order out of chaos in the whole field of biological standardization) was non-crystalline and had a potency of 8 units per mgm. The present standard—the material for which was made in the Connaught Laboratories of our University

—is composed of the zinc insulin crystals and has a potency of 22 units per mgm. The creation of these international yardsticks has been largely responsible for the uniform potency of insulin the world over and the accurately predictable effect it has exerted on the uncomplicated case of diabetes.

Crystalline insulin is made up entirely, as far as can be ascertained, of protein, and contains the following amino acids: serine, threonine, glutamic acid, cystine, leucine, lysine, arginine, histidine, phenylalanine, tyrosine and proline (Fig. 6). The number and complexity of these building stones make the possibility of synthesis of insulin remote. These amino acids are presumably joined together in one special manner by nature to form the insulin molecule. There are many thousands of ways in which the building stones might be united.

AMINO ACIDS OF CRYSTALLINE INSULIN		
AMINO ACID	FORMULA	PER CENT
SERINE	$\text{CH}_3\text{OH}\cdot\text{CH}\cdot\text{NH}_2\cdot\text{COOH}$	3.6
THREONINE	$\text{CH}_3\cdot\text{CHOH}\cdot\text{CHNH}_2\cdot\text{COOH}$	2.7
GLUTAMIC ACID	$\text{HOOC}\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{CHNH}_2\cdot\text{COOH}$	21
CYSTINE	$\text{HOOC}\cdot\text{CHNH}_2\cdot\text{CH}_2\text{S}\cdot\text{S}\cdot\text{CH}_2\text{CHNH}_2\cdot\text{COOH}$	12.9
LEUCINE	$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH} \\ | \\ \text{CH}_3 \end{array} \cdot \text{CH}_2\cdot\text{CHNH}_2\cdot\text{COOH}$	30
LYSINE	$\text{H}_2\text{N}\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{CHNH}_2\cdot\text{COOH}$	1.3
ARGININE	$\text{H}_2\text{N}\cdot\text{N}=\text{C}(\text{NH}_2)\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{CHNH}_2\cdot\text{COOH}$	3.3
HISTIDINE	$\begin{array}{c} \text{HC}=\text{C} \\ | \quad | \\ \text{NH} \quad \text{NH} \\ | \\ \text{CH} \end{array} \cdot \text{CH}_2\cdot\text{CHNH}_2\cdot\text{COOH}$	4
PHENYLALANINE	$\text{C}_6\text{H}_5\cdot\text{CHNH}_2\cdot\text{COOH}$	8.4
TYROSINE	$\text{HO}\cdot\text{C}_6\text{H}_4\cdot\text{CHNH}_2\cdot\text{COOH}$	12.8
PROLINE	$\begin{array}{c} \text{CH}_2 - \text{CH} \\ | \quad | \\ \text{CH}_2 \quad \text{CH}\cdot\text{COOH} \\ | \\ \text{NH} \end{array}$	10
		110.0

Fig. 6.—Amino acids of crystalline insulin.

From the practical viewpoint, i.e., of the treatment of diabetes, the successful purification of insulin was not an unmixed blessing. Solutions made with the crystals had a shorter duration of action than many of the less pure preparations. Having completed the task of purifying insulin it was necessary to replace the impurities by a harmless and inert substance which would delay the absorption of the active material, i.e., to add a pure "impurity" which would form a compound with insulin from which the latter would slowly be liberated. Many

TABLE I.
COMPARISON OF COMPOSITIONS AND PROPERTIES OF PROTAMINE
AND PROTAMINE ZINC INSULIN

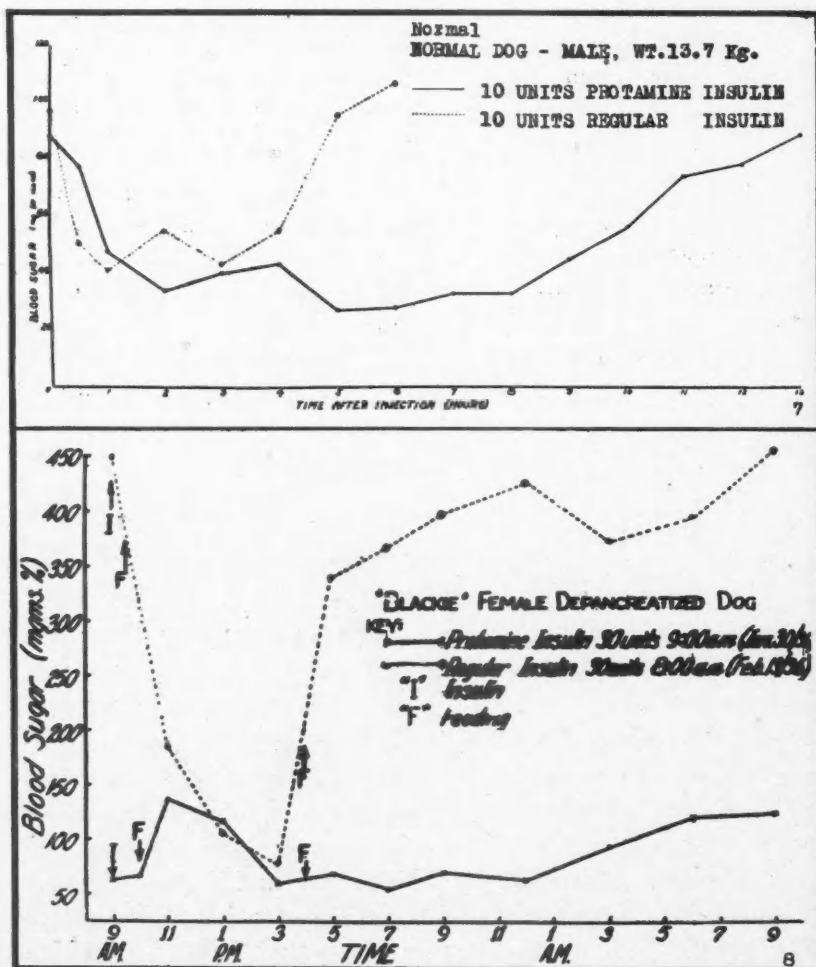
	Protamine and insulin	Protamine zinc insulin
Vials	Two	One
Stability	Unstable	Moderately stable
Appearance	Cloudy suspension	Cloudy suspension
Reaction	pH 6.9 to 7.4	pH 7.1 to 7.4
Protamine (per 100 units of insulin)	0.8 mgm.	1.25 mgm.
Zinc	Little or none	0.2 mgm.
Potency in solution	Small amount	Insignificant amount

attempts were made to accomplish this objective but the first practical solution came from Hagedorn and his group in Copenhagen who developed protamine insulin. Protamine insulin was a most valuable, but relatively unstable material and it was greatly improved when Drs. D. A. Scott and Albert Fisher of the Connaught Laboratories added a small amount of zinc. A comparison of the compositions and properties of protamine, and protamine zinc insulin, is given in Table I. More than half the insulin now used in Canada or in the United States is protamine zinc insulin (Table II). Many

attempts to improve this product have been made. Clear solutions of relatively slow-acting insulin, such as globin insulin, have been prepared. Clinical opinion, however, is still largely in favour of protamine zinc insulin but slight

TABLE II.
USE OF INSULIN PREPARATIONS
RELATIVE YEARLY VALUES
(Considering 1937 as 100)

1924.....	9	
1934.....	69	
1937.....	100	(Protamine zinc insulin = 25%)
1940.....	172	(Protamine zinc insulin = 49%)
1944.....	278	(Protamine zinc insulin = 54%)



Figs. 7 and 8.—From Kerr and Best.

changes such as an increase in the insulin to protamine ratio may be introduced.

There are many clinical results which demonstrate the more gradual and prolonged effect of the protamine insulins. The contrast with regular insulin is well illustrated in the two following figures (Figs. 7 and 8), made from data obtained on normal and diabetic dogs in the Department of Physiology.

THE SUPPLY OF INSULIN

When our only source of insulin was from dog's pancreas the ducts of which had been tied some 8 or 10 weeks previously, Banting and I visualized herds of cattle upon which this operation had been performed at the appropriate interval before their demise. Indeed we went as far as obtaining some steers at the country seat of the Connaught Laboratories and after anaesthetizing them we rearranged their internal structure to suit our con-

venience. Happily, from all viewpoints, this procedure on a large scale was not required and after passing through a phase when fetal calves were at a premium, we found that commercial beef pancreas extracted with alcohol, provided us with a readily available source of the internal secretion. Now, the pancreas from one steer may weigh approximately one-half a pound and will provide enough insulin to treat the average diabetic patient for about two weeks. Obviously, therefore, the number of cattle available in the world acquires an additional interest in the minds of many millions of people.

The discovery of a readily available source of insulin in 1921 did not immediately remove all the obstacles to a more satisfactory rate of production. The advances in methods of purification which Professor Collip made were of great importance but knowledge of the properties of insulin was so meagre that, even after treatment of patients had commenced, the secret of securing active material was lost for weeks—which seemed years! The struggle in the sub-basement of the Medical Building during the winter and spring of 1922, deserves a chapter for itself. The wind tunnel in which acetone extracts of pancreas were evaporated with the help of hot (and unprotected) electric wires, the gigantic glass flask which exploded, the first metal still whose hungry condenser demanded and received two tons of ice per day (delivered by hand), the floods, and the wild rats, all these made lasting impressions on me and on my first scientific colleague, D. A. Scott, in what was then called the Insulin Division of the Connaught Laboratories. Production gradually improved, as you will see from Tables III and IV. The insulin supplied at this

time contained only from five to ten of the present units per cubic centimetre in contrast with the 40, 80 or 100 unit material now available.

The primitive insulin plant in the Medical Building was followed by a much more efficient one constructed in the house which had previously accommodated the University Young Men's Christian Association. Many of you do not remember this little structure which stood in the shade of some fine elms somewhere between the present School of Hygiene and the Engineering Building. This unit continued to serve a most useful purpose until the insulin plant was transferred to the School of Hygiene in 1927.

If one had been asked to predict the curve of insulin distribution from 1922 to 1945, many of us would have suggested a very steep rise during the first five or six years and a much more gradual increase from there on. This has not been the case, and the total distribution of insulin in Canada and the United States has doubled every five years for the past fifteen years. While a small proportion of the insulin used has been for non-diabetic, particularly mental, cases, the main demand has been for the treatment of the rapidly increasing number of diabetics. The dramatic lowering of the mortality rate of young diabetics and increase of the life span of diabetics in all age groups has been recently summarized by the Metropolitan Life Insurance Company.

"Today, the average diabetic child of ten may be expected to celebrate his fiftieth birthday, whereas just prior to 1922 most diabetic children lived little more than one year after the onset of their disease. At age thirty expectation of life is now twenty-seven and one-half years, compared to little more than six years in the days before insulin. Even at age fifty the improvement is sizable, with an expectation of life of fourteen and one-half years today which is 50% more than in the pre-insulin era. And these added years of life are useful and active, not years of invalidism. Moreover, this great improvement in the active life of the typical diabetic is of particular importance, because the number of these persons in the population is actually increasing through the aging of the population and through the increased survivals of younger diabetic patients to older ages."

This paragraph based on accurate statistics describes the complete realization of all that Banting and I hoped and planned for in the summer of 1921. The curve illustrating the rate of increase of insulin distribution in Canada (the one for the United States is essentially the same) is shown in Fig. 9.

TABLE III.

INSULIN SUPPLIED TO DR. BANTING

June, 1922	122½ c.c.
July, 1922	512 c.c.
August, 1922	390 c.c.
September, 1922	1,682 c.c.

TABLE IV.

INSULIN SENT OUT, OCTOBER, 1922

<i>Name and address</i>	<i>Total</i>
Dr. Banting, Toronto	696 c.c.
Diabetic Clinic, Toronto General Hospital	932 c.c.
Soldiers' Civil Re-establishment, Christie Street Hospital	1,120 c.c.
Laboratory, Toronto	331 c.c.
Hospital for Sick Children, Toronto	76 c.c.
Mr. Havens, Rochester	48 c.c.
Dr. Black, Hespeler	4 c.c.
Total	3,207 c.c.

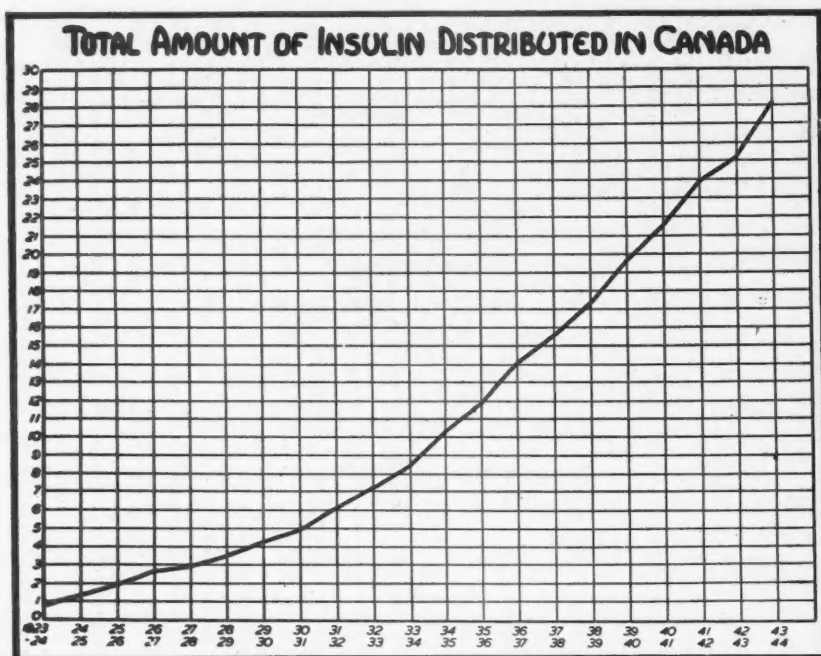


Fig. 9.—Curve illustrating the rate of distribution of insulin in Canada.

The demand for insulin has placed a heavy strain on the source of the material, and the shortage of pancreas threatened to become acute just before the present war. Although certain steps can be taken to make more of the smaller sources of supply available, the situation will become critical again in the not distant future if the demand for insulin continues at the present rate.

The war has had a favourable effect on the supply of pancreas for the production of insulin in the United States and Canada, since the amount of raw material shipped to Europe from the Western Hemisphere has decreased. But the diabetics of the occupied countries of Europe have suffered from a lack of insulin and for many cases there has been none available. Through the kindness of Sir Henry Tidy, President of the Royal Society of Medicine, London, I was given the opportunity, slightly more than a year ago, to discuss the insulin situation with the medical representatives of the "Governments in exile" of practically all of the countries which were at that time occupied. The lack of insulin was only one of their many woes, but as some of them expressed it: "To have our children thrust back to before the 'insulin era' is hard to bear".

Matters have now improved. The Canadian Red Cross sent insulin to Greece, the first lot arriving not long after the German occupation. Several shipments have been made more recent-

ly. Supplies have now reached France and Belgium from various sources. Full details of the present situation are, of course, not yet available. Germany may have had adequate reserves of insulin for Aryan diabetics and certain satellite countries may have attempted to purchase unusually large amounts during this war.

There has been no lack of insulin in England but on one occasion two of their main supply depots were destroyed by bombs. An adequate amount of insulin powder was dispatched immediately by air from the United States and the situation was saved.

THE ACTION OF INSULIN

As a bridge between what we know and what we hope to know about insulin, let us consider the mechanism of its action in the body. The broad over-all picture seems bright and clear. The administration of insulin to the recently depancreatized dog or to the uncomplicated case of human diabetes, completely restores the organism and if the treatment is carefully continued and no accidents or complications occur, the patient may proceed with an essentially normal existence. If further proof were needed for this statement, the war has provided it, since, although diabetics are not accepted in the Services, a few have evaded their medical colleagues and have served as pilots over Germany with the Royal Air Force, as captains of ocean liners during the worst of the submarine menace, and in other positions of great responsibility.

We, as medical men, have been greatly impressed by the scientific accomplishments of our diabetic medical colleagues—the greatest of these is the liver treatment of pernicious anaemia, in the discovery of which Dr. George Minot was the senior partner. Many diabetic physicians* treat the condition which they have learned to control in themselves. My friend Dr. Robin Lawrence has set a fine example during the war, as he did before it, to his fellow members of the British Diabetic Association, the President of

* Including the first physician treated with insulin—Dr. Joseph Gilchrist of Toronto.

which is Mr. H. G. Wells (who writes that he has found diabetes "an invigorating diathesis").

The detailed mechanism of the action of insulin is by no means as clear as its specific effect on diabetes might suggest. We soon learned that the formation of the key polysaccharide glycogen was stimulated by insulin and that the burning of sugar was accelerated. The wasteful and dangerous breakdown of protein to sugar and fats to ketone bodies in the liver, was checked. More recently direct evidence of an action previously postulated, *i.e.*, the acceleration of the formation of fat from sugar, has been obtained. It is now possible to label the sugar molecule and in part, to follow it while it is changed to fat under the influence of insulin. Some of the phosphate compounds of paramount importance in provision of energy for muscular contraction hasten their rate of

proving in many ways the treatment of diabetic patients, are very bright.

The intelligent use of such labelling agents as radioactive phosphorus and the stable isotopes of carbon, nitrogen, sulphur and other elements, is certain to illuminate many of the dark passages through which insulin passes in producing its effect on diabetes. We can confidently expect further advances in this field which has been widened and cleared even during this war.

The fact that in the diabetic patient or in an experimental animal, eight-tenths of the insulin-producing capacity may have disappeared before it is possible to detect this by any procedure except direct examination, which of course is not feasible in a patient, presents a challenge to clinician and experimentalist alike. It is inconceivable to me that a clear-cut problem of this kind can long resist the onslaught of fresh and vigorous minds which we hope will attack it and other "Islands of Resistance" when peace comes. There are many physiological and chemical avenues of approach which have not been explored.

We have no reliable methods for the estimation of insulin in small quantities of blood. Mastery of this technique would help in diagnosing the type of diabetes and perhaps in the treatment. We need either a sensitive and specific chemical test or a micro-biological procedure which is capable of detecting the small amounts of the antidiabetic hormone which are certainly present in varying quantities in blood. Relatively few vigorous attacks have been made on this problem.

Experimental evidence suggests that diabetes may be produced by an excess of the secretions of the anterior pituitary or adrenal glands. We must develop accurate procedures for the assay of these diabetogenic materials in blood. It has already been shown that diabetes may be most favourably affected by removal of the exciting cause which has been found in a few clinical cases in one of the adrenal glands.

We can look forward with confidence to the development of better diets for diabetics. A lead has been supplied recently by English workers who, confirming the well-known favourable effect of diets rich in fat on the diabetes of experimental animals, have suggested that certain fats may be used as a source of energy without the production of excessive amounts of the dangerous ketone bodies. The

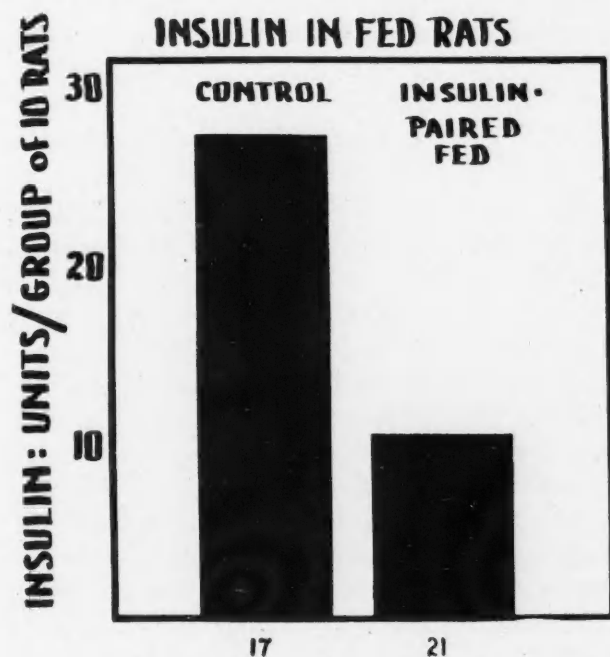


Fig. 10.—Effect of insulin administration on insulin content of pancreas (from Haist and Best).

interchange when insulin is present. Thus we know many interesting effects of insulin but we have much more to learn before the picture is complete.

The provision of exogenous insulin rests the pancreatic islets and their stores of insulin decrease (Fig. 10).

THE PROSPECTS

The prospects of obtaining a more complete knowledge of the action of insulin and of im-

rôle of some of the new accessory food factors on the intensity of diabetes is just beginning to be studied and the use of small animals made diabetic by the injection of alloxan, a chemical which selectively destroys the insulin-producing cells, will be of great value.

We know that there will be better control of infections, which produce the main problems in the treatment of many diabetics. Penicillin by its gentle and effective action should introduce a new era of progress in relation to the control of infection in diabetic patients.

The problem of giving insulin in a more physiological way presents many difficulties. It will not be easy to make a compound of insulin which is susceptible to the sugar content of the tissues. This compound should free insulin more rapidly as the sugar content of its environment increases and thus simulate conditions in the normal pancreas. Improvements over protamine zinc insulin are quite possible and should certainly engage the attention of those who have already made such strides in this field. Insulin by mouth for mild cases of diabetes is by no means an impossibility although it will probably always be a wasteful procedure and perhaps a hazardous one, when the dose of insulin must be very accurately regulated.

If insulin could be given by mouth, the difficulties of supply which I have already emphasized, would be increased. Perhaps there is some short cut to the synthesis of insulin or perhaps only certain of the chemical groupings in the complicated formulæ which I showed you, are necessary for the antidiabetic effect. We may well have to utilize the large amounts of insulin which could be collected from the bony fishes who manufacture and store their insulin in an organ devoted exclusively to this task. Perhaps some of the more primitive but readily available forms of life make something which is either insulin or which can be readily transformed into it.

In many of the chronic cases of diabetes, the insulin-producing capacity of the islet cells is irretrievably lost and we can work only to improve the replacement therapy, *i.e.*, the procedures by which insulin is given. In the mild or new cases and perhaps in some of the older patients, there is hope that a cure will be discovered. This problem, and the prevention of

the disease, are two of the most urgent ones which face workers in this field.

In experimental animals the diabetes resulting from partial removal of the pancreas or from administration of the diabetogenic hormone of the anterior pituitary gland may now, under certain conditions, be prevented or in its early stages cured by the appropriate use of insulin and diets which do not tax the capacity of the remaining islets of Langerhans.

The prevention and cure of diabetes in experimental animals arouses hope that application of similar procedures may some day be made in the human subject. This will not be easy until the potential human diabetic can be recognized much earlier than is possible at present and until much more light is thrown on the etiology of the diabetic state in man. In spite of the obvious difficulties I have no doubt that some enterprising clinician will determine, by actual trial, the extent to which the results of the animal experiments are applicable to the human subject. In the meantime further experimental research may help to clarify the situation.

In conclusion, the experiments begun in May, 1921, resulted in the isolation of the anti-diabetic hormone, the administration of which to completely depancreatized dogs, restores these animals to perfect health, which can be maintained indefinitely. A great deal has been learned about the action of insulin. The purification of the active principle has made available the pure crystalline insulin protein. The clinical application of the experimental findings, dating from January 11, 1922, has created an ever-increasing demand for insulin which threatens to outrun the immediate source of supply.

Many of the gains made in the field of insulin and diabetes are well consolidated but a host of new problems, on a much broader front, have appeared. This is a healthy situation which should attract many young minds in what we hope will soon be a great post-war period of medical research.

Knowledge is of two kinds. We know a subject ourselves or we know where we can find information upon it.—Samuel Johnson.

GENITOFEMORAL CAUSALGIA*

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GENITOFEMORAL causalgia was first described by McGee¹ in 1942 as a syndrome characterized by pain and paræsthesia in the distribution of the genitofemoral nerve. He reported a series of 7 cases, 5 of which had been operated upon with complete relief of symptoms. During the past year and a half we have encountered three patients complaining of this syndrome, all of whom have been operated on with relief of their pain.

The genitofemoral nerve² arises from the first and second lumbar nerves. It passes obliquely forward and downward through the substance of the psoas muscle and emerges near its medial border opposite the third or fourth lumbar vertebra; it then descends on the surface of the psoas major under cover of the peritoneum and, crossing obliquely behind the ureter, divides at a variable distance above the inguinal ligament into the genital (external spermatic) and femoral (lumbo-inguinal) branches. The genitofemoral nerve frequently divides close to its origin and its two branches then emerge separately through the psoas major.

The genital branch crosses the lower end of the external iliac artery and enters the inguinal canal through the deep inguinal ring; it supplies the cremasteric and gives a few filaments to the skin of the scrotum. In the female it accompanies the round ligament of the uterus and ends in the skin of the mons pubis and labium majus.

The femoral branch descends on the lateral side of the external iliac artery and sends filaments around it; it then crosses the deep circumflex iliac artery and passing behind the inguinal ligament enters the femoral sheath lying lateral to the femoral artery. It pierces the anterior layer of the femoral sheath and fascia lata and supplies the skin over the upper part of the femoral triangle. It communicates with the intermediate cutaneous nerve of the thigh.

The lumbar plexus² passes through the psoas major and therefore in psoas abscess any or all of its branches may be irritated causing severe pain in the part to which the irritated nerves are distributed. The genitofemoral nerve is the one which is most frequently implicated.

Although the above description is the usual one given of the anatomy of the genitofemoral nerve it may vary somewhat not only in its division into the two branches but also in the size of the area supplied, as will be pointed out in the following case reports.

CASE 1

R.V., aged 18, farmer, was seen on August 7, 1943, complaining of severe pain in the right groin of four months' duration. The pain was aggravated by standing, walking, lifting and straining and disappeared when the patient would lie down and flex his right thigh on the abdomen. Three weeks prior to consultation the pain became so severe that he had to stop work and was

able to walk only a few yards without sitting or lying down to obtain relief. He had no other complaints. In August, 1939, he had had an appendectomy done for acute appendicitis through a gridiron incision. The appendix was acutely inflamed and was removed in the conventional manner and the abdomen was closed without drainage. Convalescence was uneventful.

On physical examination the patient did not appear acutely ill. He walked in a stooped position holding his hand in his right groin. When sitting he appeared quite comfortable. The old appendectomy scar was well healed, not tender or fixed. The left inguinal ring was small and not tender. The right inguinal ring admitted the little finger and there was marked tenderness along the right inguinal canal especially in the region of the internal ring, in fact, the tenderness in this region was so acute that the patient became faint when this area was palpated and he stated that this was the exact spot where he felt the maximum amount of pain when walking and standing. No impulse was perceived when coughing and no hernial sac was demonstrable. The testicle was not tender and rectal examination revealed no abnormalities. Hyperextension of the right thigh produced marked pain. He was advised to rest in bed for a week and was seen again on August 16, 1943, when he stated that as long as he remained in bed he was comfortable, but on getting up to go to the bathroom the pain was present and seemed to be increasing in severity and had begun to extend over the upper part of the right thigh. A diagnosis of genitofemoral causalgia was made and operation advised.

On August 19, 1943, (under nupercaine spinal anaesthesia 14 c.c.) a right paramedian incision was made and the abdomen explored. The cæcum and terminal ileum were found to be bound down by dense adhesions to the posterior peritoneum over the iliac vessels. There were no adhesions to the anterior abdominal wall or to the region of the internal ring. These adhesions about the terminal ileum and cæcum were freed and the posterior peritoneum was opened. The genitofemoral nerve was identified and lifted up from the psoas muscle where it crossed beneath the ureter. It was followed down as a single trunk to just above the internal ring where it was found to divide into its two branches, the one passing through the ring with the cord, the other passing down beneath Poupart's ligament. In this region the nerves seemed to be under an unusual tension. Approximately two inches of the main nerve trunk was excised and the cut ends allowed to retract. The posterior peritoneum was closed with fine catgut and the abdominal wound closed in the usual manner without drainage.

The patient was examined ten hours after operation when the spinal anaesthesia had completely worn off and it was found that he had no tenderness whatever along the inguinal canal. One could pass the finger through the external ring along the inguinal canal up to and into the internal ring without any discomfort. Anaesthesia was demonstrable over a small area along the right groin and in the upper thigh. The convalescence was completely uneventful and the patient was discharged on the twelfth postoperative day with the wound healed by primary union. He returned to work at the end of another two weeks and has been free from pain and discomfort since that time.

CASE 2

Mrs. V.T., aged 20, housewife, was referred on December 16, 1943, complaining of pain in the right lower abdomen of 18 months' duration. This pain had begun two months after delivery of a baby. The pain was almost constant, being aggravated by standing, lifting and walking. The pain extended down over the upper portion of the right thigh anteriorly and at times seemed to shoot down into the right side of the vulva. About six months ago she began to work at an occupation which required her to stand for several hours a day and this markedly increased her pain and during the past month she has been unable to carry on with her

* Presented before the Windsor Surgical Fellowship Club, June, 1944.

job. The remainder of the history was negative except for the fact that her menstrual periods have occurred every fourteen days with profuse flow for four days during the past few months. Five years ago she was operated on for chronic appendicitis through a right rectus incision.

Examination revealed a healthy looking young woman who did not appear to have any pain when walking. There was a well healed scar in the right upper abdomen which showed some evidence of keloid formation. There was a point of tenderness one and one-half inches below the lower end of this scar immediately over the internal inguinal ring and she stated that her pain began here and radiated to the upper thigh and along the groin to the right labia. Vaginal examination revealed the uterine body to be anteverted and not enlarged. There was a soft mass in the left fornix about two inches in diameter which was not tender. The right ovary was palpable, larger than normal but not tender. It was felt that the left-sided mass which was diagnosed as an ovarian cyst could not account for her pain but was possibly responsible for her menstrual irregularities. She was advised to have a laparotomy for the removal of this mass and that, if no other cause were found for her right sided pain, we would section the genitofemoral nerve.

December 28 (under nupercaine spinal anaesthesia) the right rectus scar was excised and the abdomen opened. There were no adhesions to the anterior abdominal wall, there were a few adhesions between the base of the caecum and the posterior peritoneum. The right tube appeared normal. The right ovary was twice the normal size and contained a number of simple retention cysts. The uterus was normal. The left tube was adherent to the ovary at its fimbriated end and a hydrosalpinx two inches in diameter was present. This mass was separated from the ovary and about two-thirds of the tube was resected. The remaining stump of tube was shown to be patent by air injection through the severed end. The posterior peritoneum over the right genitofemoral nerve was incised and the nerve exposed lying on the psoas muscle. It was found to consist of a single trunk which divided into two branches two inches above Poupart's ligament. Two inches of the main nerve trunk was excised and the posterior peritoneum closed with fine catgut. Abdominal wound closure was done with interrupted fine steel wire in the fascia and skin clips in the skin.

When examined eight hours postoperatively, patient stated that the pain in her right groin was completely relieved. A small area of anaesthesia was demonstrable in the upper inner part of the thigh. Recovery was uneventful and she was discharged on the ninth post-operative day. Five months later the patient stated that she still had some pain in the lower abdomen at her menstrual periods which were now occurring every 28 days. She volunteered the information that she had been perfectly free of the pain complained of before operation and had been able to work steadily since her discharge from hospital.

CASE 3

Mrs. M.F., aged 24, housewife, first came under observation in July, 1943, complaining of menorrhagia of seven days' duration and the periods occurring every two weeks. She had one child five years of age. In 1935 she had had an appendectomy through an oblique right abdominal incision. In 1941 a uterine suspension had been done through a lower midline incision and in 1943 the midline incision had been resected and the abdomen again opened because of lower abdominal pain diagnosed as being due to adhesions. These procedures were done elsewhere. At our first examination we were unable to find any abnormalities in her pelvic organs which might account for her menorrhagia. She was placed on small doses of thyroid extract and after one month of this therapy her menorrhagia ceased and the periods occurred every 28 days.

She was not seen again until November 25, 1943, when she came complaining of crampy pain in her right lower abdomen accompanied by vaginal bleeding of one week's duration. She stated that she had not menstruated the month previously. Examination at this time revealed a tender mass in the right vaginal fornix along with a tender cervix. Posterior colpopuncture was done and old dark blood obtained. A diagnosis of ectopic pregnancy was made and the patient subjected to laparotomy, the old midline scar being again resected. An ectopic pregnancy was found in the right tube with free blood in the pelvic cavity. The right tube was excised. She made an uneventful recovery and left the hospital on the tenth day.

She remained well for a month after her discharge from hospital and then returned complaining of a severe pain in the lower right abdomen in the region of the internal inguinal ring radiating up toward the flank and down over the right upper thigh. Pelvic examination at this time was entirely negative. She was given a mild sedative and when seen one week later she stated that her pain was becoming more severe and was now radiating half way down the anterior surface of the thigh. The pain was so severe that she could not walk and was unable to sleep. She described the pain as burning and stabbing in character. Examination at this time showed an area of marked tenderness over the internal inguinal ring with pain radiating to the right side of the vulva and down the anterior surface of the thigh almost to the patella. Fifteen c.c. of 1% novocaine was carefully

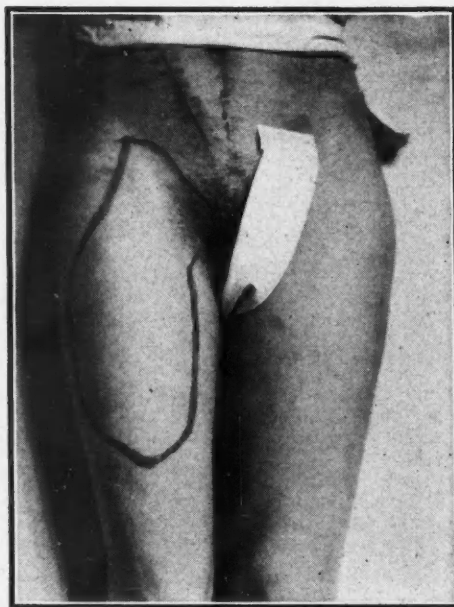


Fig. 1. (Case 3).—Photograph shows area of anaesthesia still present one month after operation. This area corresponds with the usual distribution of not only the genitofemoral nerve but also of the lateral femoral cutaneous and part of the median intermediate femoral cutaneous. This is a much larger area of anaesthesia than was seen in the other cases.

injected around the region of the internal ring. She received no relief from this and I was called to her home on three separate occasions during the next week and each time she required morphine for relief.

In spite of the fact that this patient had had four laparotomies, her pain was so acute that she demanded that something be done. As the distribution of her pain was along the path of the genitofemoral nerve, it was decided to again explore her abdomen and section the nerve.

January 22, 1944 (under ether anaesthesia) the old oblique right rectus scar was excised and the abdomen

opened. The pelvic organs were found normal except for the loss of the right tube. A few filmy adhesions were found at the base of the caecum and terminal ileum. These were separated and the posterior peritoneum was incised, exposing the genitofemoral nerve lying on the psoas muscle. The nerve was found to consist of two separate trunks lying intimately connected with each other. These were followed upward to the ureter where they merged into one trunk. The nerve was sectioned at this point. The two trunks were found to divide into three branches, one going through the internal ring and the other two branches going beneath Poupart's ligament. The nerves at the region of the internal ring seemed to be under tension. About two inches of the main trunks were excised. The nerves in this case were much larger than any previously encountered. The posterior peritoneum was closed with fine catgut, interrupted fine steel wire was used for fascial closure, and skin clips for skin.

When seen eight hours postoperatively the patient stated that she was perfectly free from pain except for slight discomfort in the region of the incision. There was well marked anaesthesia from the groin to the mid-thigh anteriorly. She made a rapid and uneventful recovery and was discharged completely free from pain on the ninth day. When seen a month later she had remained free from pain and although the area of anaesthesia in her thigh was still present it occasioned her no discomfort. Six months after operation she still had an area of anaesthesia on the front of her thigh which was diminishing in size. She had been completely free of pain.

Wishing to study the microscopic appearance of the section of nerve removed in this case the specimen was submitted to Dr. Eric Linell of the Department of Neuropathology, University of Toronto, whose detailed report follows.

Examination after fixation: A portion of nerve was received which consists of a main trunk dividing into two branches which are unequal in size. The length of the specimen is 2.5 cm. and the main trunk is 2 mm. thick. The larger of the two branches is infiltrated by haemorrhage. The remainder of the specimen consists of unidentifiable tissue.

Block A: Transverse section distal end of larger specimen, paraffin. This specimen is infiltrated by a moderate amount of haemorrhage.

Block B: Adjacent upper section for longitudinal sections, Smith and Quigley.

Block C: Adjacent section longitudinal sections, paraffin.

MICROSCOPICAL REPORT

Blocks A, C: Stained with (1) Haematoxylin and eosin. (2) Mallory's connective tissue stain. (3) Mallory's phosphotungstic acid. (4) Cresyl violet.

Block B: Smith and Quigley.

Block A: These transverse sections of the genitofemoral nerve show six bundles of nerve fibres bound together by loose connective tissue. The small arteries in the connective tissue show thickening of their walls and adjacent to one of these thickened vessels there is a mass which is difficult to identify with certainty but is probably an extremely degenerate bundle of nerve fibres. The remaining nerve bundles show some thickening of their perineural sheaths and infiltration of fibrous tissue between individual nerve fibres. Mallory's connective tissue stain confirms moderate perineural and intraneural fibrosis. With Mallory's phosphotungstic acid the extremely degenerate nerve bundle shows complete loss of its myelin staining. The majority of the medullated fibres visible in the other nerve bundles show moderately satisfactory medullation but they are reduced in numbers by the intraneural fibrosis of the nerve trunks. Cresyl violet, under high magnification, shows proliferation of

fibroblasts within the nerve bundles. No inflammatory changes are visible in the tissues of this block.

Block B: These longitudinal sections of the nerve stained with Smith and Quigley show, under high magnification, patchy demyelination of the nerve fibres with breaking up of the myelin sheaths into small myelin droplets.

Block C: This longitudinal section, corresponding with Block B, shows what appear to be patchy areas of intraneural fibrosis scattered along the nerve trunk. In these areas the medullated fibres have largely been destroyed, as seen with Mallory's connective tissue and Mallory's phosphotungstic acid stains. Again there is no evidence of inflammatory change in or around the nerve trunks.

SUMMARY OF MICROSCOPIC FINDINGS

The sections show a patchy intraneural fibrosis, with demyelination in these areas, of the fibres of the genitofemoral nerve. These changes are moderate in degree in the majority of the nerve bundles but in Block A a bundle of very severely degenerate nerve fibres are visible. Around the individual nerve bundles there is slight thickening of the perineural fibrous sheaths. Between the nerve bundles the fibrous tissue contains small arteries with thickened walls but epineural fibrous tissue is not increased in density and shows no evidence of a subacute or chronic inflammatory reaction.

Diagnosis: Intraneural fibrosis and patchy demyelination.

DISCUSSION

In reviewing McGee's recorded cases and also considering the symptomatology exhibited by the above patients, one feels that perhaps neuralgia would be a better term in describing the syndrome than causalgia. This latter term is usually reserved to describe a neuralgia characterized by intense local sensation as of burning pain. In none of these cases recorded was burning pain an outstanding characteristic.

We have been particularly impressed with the apparent tension which these nerves are under at the region of their exits from behind the posterior peritoneum and their entrance to the internal inguinal ring and below Poupart's ligament. In none of the above cases were the adhesions which were constantly present particularly dense but the nerves in all three cases were quite taut even with the patient lying in the supine position, and one could easily imagine that this tension might be increased by hyperextension of the thigh during the act of walking, standing, etc. We have been unable to demonstrate this same degree of tension of the nerves in individuals not complaining of this syndrome and examined during laparotomy for other conditions.

It is very interesting that of McGee's 7 cases, 5 had had appendectomies and of our own cases all three had been subjected to appendectomy. It is difficult to correlate these findings but they cannot be overlooked. The pathological study

carried out in the one case was interesting and will bear further confirmation in future cases encountered.

Although the surgical approach to this nerve can be easily made extraperitoneally, it would seem advisable to use the trans-abdominal approach, so as to be able to deal with any intra-abdominal condition as was found in case 2.

Novocaine injection in the one case tried gave no results. The anaesthesia produced by section does not cause inconvenience and is usually quite transient.

CONCLUSIONS

1. Genitofemoral causalgia (neuralgia) is a clinical syndrome characterized by pain in the area of distribution of the genitofemoral nerve.

2. At the present time, section of this nerve seems to be the best method of producing a cure of this most distressing condition.

I wish to express to Dr. Eric Linell, Department of Neuropathology, University of Toronto, my sincere appreciation for his detailed report on the sections of the nerve specimen submitted to him.

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SMALL HOSPITAL CONSTRUCTION*

By Frank H. Coppock, M.D.

Eckville, Alta.

PROFESSOR CAMERON of the Department of Biochemistry, University of Manitoba Medical College, once opened a lecture with the following sentence, "It is sometimes useful to be dogmatic; a crystallized statement rivets attention and challenges contradiction". I propose to follow that course in the hope that I may at least direct your attention to what I consider fundamental principles in small hospital construction.

The procedure for the organization and establishment of a municipal hospital district in this Province is set out by Act of the Legislative Assembly, and must be followed. The erection and equipment of a small hospital in

that district is a different matter entirely. We recognized early that it was much more complicated than simply engaging the services of an architect, the calling for and letting of tenders, and in due course having the finished product ready for occupancy.

The examination of blue prints of recently constructed plants, and visits to six other hospitals within range, demonstrated clearly that too many mistakes were made, some of which recurred repeatedly. Sources of information were then sought and explored, and having gathered much information I was delegated the task of sorting, appraising, and finally translating the accepted principles to paper, in the form of a floor plan for a sixteen-bed hospital.

The primary function of a small hospital is the same as that of any other hospital, *viz.*, the housing and the care of the sick. The level of service available depends on the facilities available and the ability of the profession to use them. This level is definitely higher today than a few years ago, and the trend is upwards. The community as a whole can provide diagnostic and therapeutic equipment, and a technician to operate it which the average physician cannot afford. Furthermore a small hospital centralizes the work, thereby enabling those providing the service to do much more in less time. This feature will become more apparent with the introduction of health insurance, and the consequent increase in the volume of work without a proportionate increase in professional personnel.

PRINCIPLES

General Layout.—The structure should be a cross or inverted "T", facing south, the wards located in the east-west wing, and the operative and diagnostic facilities in the north wing. This suggestion was made by Mr. Hamilton. This plan offers the following advantages over the conventional rectangle:

1. Open ends on the main east-west wing, which permit of expansion at a later date without disturbing the present set-up.

2. Better balance and distribution of services. The north wing houses the operative and diagnostic services, x-ray and laboratory, dressing room, operating room, sterilizing room, case room, and labour room, thereby isolating noise and objectionable odours from the wards on the east-west wing.

* Presented to the Annual Meeting of the Alberta Division, Canadian Medical Association, Edmonton, Alta., September 21, 1944.

The east-west wing is evenly divided into two suites of wards, each with its own accessory rooms, thereby providing better nursing facilities with fewer steps. The amount of plumbing can be reduced to a minimum by putting all the accessory rooms on the north side of the east-west wing. The heating plant can be centralized, with two evenly balanced circuits, neither of which is too long.

Better light distribution. The wards on the south are bright and sunny. The main corridor is well lighted. The operating room, main kitchen, and stores room have north light.

Disadvantage as compared to the conventional rectangle. The closer a building ap-

Experience had taught me that 4-bed wards in a small hospital are unsatisfactory. The Rosthern Hospital had 14 beds, seven on each floor, divided four, two and one. The operating room was on the lower floor, hence the 4-bed ward had to take care of the male services, medical and surgical. The 2-bed and single wards were reserved for female surgery. The 4-bed ward might be occupied by one male patient when the fourth female surgical case came in, and as a result one female patient had to be moved upstairs in the face of three empty beds down stairs. Had the 4-bed ward been divided into two 2-bed wards the assignment of patients would have been much easier.



Fig. 1.—Sixteen-bed hospital at Eckville, Alta. This rural hospital, built in 1944-45, follows the "T" plan. In this plan, each bed has the head towards the window instead of being at right angles—the usual arrangement.

proaches a cube the cheaper the cost of construction. The cross or inverted "T" type does not conform to this principle, and is therefore a more expensive type of structure.

THE THREE-TO-ONE RATIO

1. *Assignment of rooms.*—Mr. Erikson states that: "To meet the economic and clinical needs, multiplied by two because of sexes, extreme flexibility in assignment of rooms is obviously needed. In the 25-bed hospital or less, no room should be larger than needed for two beds, and the normal set up should be three-fourths of the beds in two bed rooms, and one-fourth in single rooms." This is the three-to-one ratio.

2. *Occupancy.*—A small hospital should run at an average of 70% occupied from an economic point of view. The three-to-one ratio enables this performance without inconvenience. Mr. Erikson illustrates the point in his article as follows:

A 20-bed hospital containing four single and four 4-bed wards is compared to a 16-bed hospital built on the three-to-one ratio, providing four single and six 2-bed wards.

There are 13 patients in each hospital, 65% occupancy in the 20-bed, and 81% in the 16-bed, distributed as follows:

	20-bed	16-bed
Single wards	All occupied	All occupied
Obstetrical wards	1 patient 3 empty beds	1 patient 1 empty bed
Women's ward	2 patients 2 empty beds	2 patients 0 empty bed
Men's ward	4 patients 0 empty bed	2 patients 0 empty bed
Children's ward	2 patients 2 empty beds	2 patients 0 empty bed

The 20-bed plant has seven vacant beds as against three in the 16-bed plant. The next patient is a male. The 20-bed hospital has no place to put him, whereas the 16-bed hospital has one empty 2-bed ward, and puts him to bed, and can still admit one more male and one maternity case, or in a pinch one more female.

3. *Isolation.*—The matter of isolation of cases in a small hospital is one of considerable difficulty in the average plant with 4-bed wards. The three-to-one ratio offers a very distinct advantage in this respect. Each suite has its own pair of single rooms with connecting toilet facilities. This arrangement should take care of the following:

Isolation of contagious diseases which occasionally crop up on a ward, such as measles, scarlet fever, or chicken pox, etc.

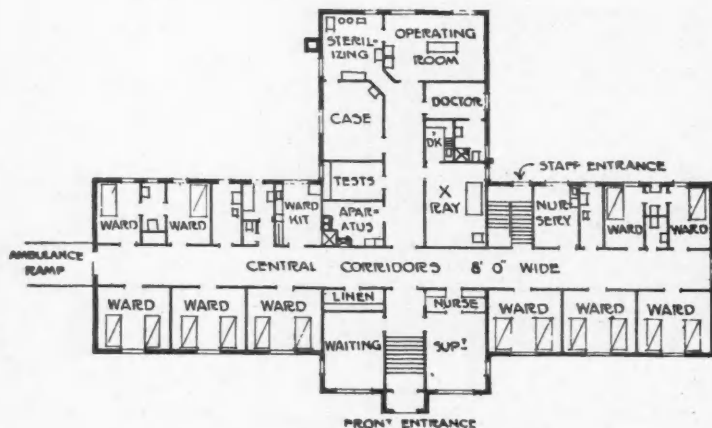


Fig. 2.—Main floor.

The room labeled "tests" was converted into "labour" and the laboratory bench was put in the x-ray room as per text.

The scrub sinks are not in the operating room as shown, but in the sterilizing room as per text.

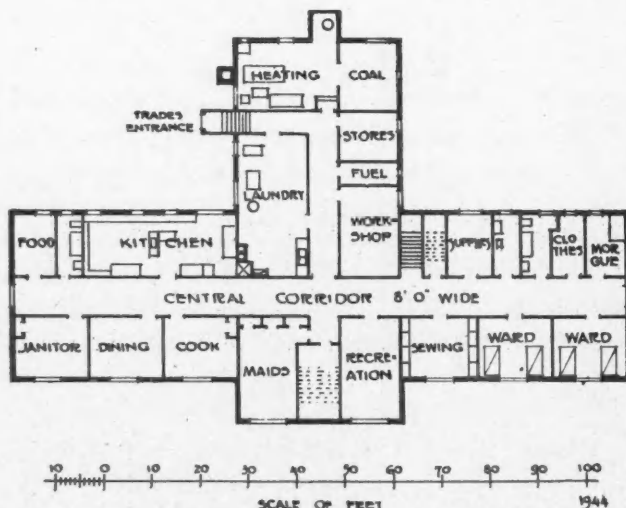


Fig. 3.—Basement plan.

Isolation of infectious cases, *e.g.*, an appendiceal abscess with drainage, or a maternity case running a temperature.

Isolation of the very sick patient who requires rest, intravenous therapy, etc.

Isolation of the moribund or noisy patient.

Isolation of the nuisance patient.

Isolation of the babe with impetigo or other skin condition. It is impossible to provide all the facilities in a small plant, but the provision of single rooms enables such cases to be isolated with the mother.

When not in use for isolation purposes these single rooms are available for private service when such is requested.

4. *Grouping of services.*—This presents a major problem in small hospitals, more especially those with 4-bed wards. The three-to-one ratio offers much better facilities in this respect.

One suite can be set aside for obstetrics and pædiatrics, thereby completely shutting them off from the rest of the hospital.

The obstetrical service can be organized on a private basis from the time the patient goes into labour until she returns from the case room.

The other suite has to take care of whatever may be in the hospital, male and female. However similar cases may be grouped in the 2-bed wards, as, *e.g.*, female surgery, male surgery, female medicine, male medicine, etc.

Accessory rooms.—I have dealt at some length with the general layout and the three-to-one ratio. The balance of the paper deals with individual rooms, rather than with the whole. Mr. Erikson states that "Building costs are seemingly reduced by eliminating essential accessory rooms, store rooms, janitors' closets, and similar necessities, but that the saving is a mirage becomes painfully evident when the building goes into service".

Waiting room and office.—These should adjoin the entrance hall and be completely shut off from the main corridor, for the following reasons:

Control of visitors. It is presumed that there will be a nurse on duty at the front during visiting hours, and the foregoing arrangement should enable her to route the traffic, and not let any of it get by unawares.

It is essential that there be a waiting room at the front to take care of those not permitted on the wards, children under age, excess visitors, and so on.

Considerable business is transacted in the office, and this arrangement keeps it where it belongs. The administrative personnel in a plant of this size is a matron, whose needs can be well met by one decent office. The office can take care of board meetings, ordinarily held in the evening, without disturbing anyone. I believe that it is important to hold the meetings in the hospital, as that is the only time it is possible to have the Board make the rounds required by the Act.

Linen cabinet and chart room.—Linen cabinets are too frequently left out altogether, or else are a hole in the wall. This one is 5 x 12, with a proper door so that it is possible to walk into it and put things where they belong. A warming closet in the linen cabinet has been provided by conducting a hot water pipe across the hall, bending it into a coil and taking it back again, thus providing heat at all seasons of the year.

The nurses' station or chart room should be so located that it controls a view of the entrance and the main corridors. This has been accomplished by locating it as shown, and putting glass all round. It does not stick out on to the main corridor, nor is it a dark corner. The Lacombe hospital has such an arrangement, and the matron there assured us that it was very satisfactory.

Utility rooms.—It is essential that there be one for each suite of wards, equipped with sufficient enamel-ware that each patient has his or her personal utensils, plainly labelled, throughout his or her stay in the hospital. The longest run with a bed pan is about 30 feet, thereby enabling the nursing staff to service the patient with a minimum of walking.

Bath room.—One is a necessity, two might be preferable. However, admissions will not exceed two per 24 hours, so there should be no crowding.

Toilets.—Two is a minimum, one in each suite. Duplication of the set-up at the east end would have provided one more and eliminated the blanket cabinet and may be preferable.

Diet kitchen.—This has been set on the north side of the east-west wing, immediately above the main kitchen, and as central as possible. There are some points here worthy of mention:

The food lift must of necessity open into the diet kitchen, but should be housed outside of it, thereby eliminating a projection into the diet kitchen, and possibly reducing the amount of

odour from the main kitchen. The lift should operate easily. Too many bind, and even stick, and the majority require too much energy to operate. The shelves should be of sufficient width to accommodate two trays per shelf.

The nursery.—The location of the nursery was given considerable attention. It is possible that the north wing may be better, being off the main corridor and wards entirely, but would have the disadvantage of distance from the maternity wards, and consequent increase in walking. We sandwiched it between the stairs and the utility room, which is handy to the maternity wards, and being sound-proofed we hope will be satisfactory. Running water in the nursery is an obvious necessity, which has been overlooked in fairly recently constructed hospitals.

Corridors and doors.—The Act requires that all corridors shall be eight feet clear in width, a regulation with which I am in complete accord. Beds may be moved in and out of wards with ease, provided the doors are wide enough. The Act requires a minimum of forty inches, which is two inches too narrow. The minimum should be forty-two inches.

Ceiling heights.—The Act requires that every ward shall have at least ninety square feet of floor space per bed, and in no case shall the ceiling height be less than nine feet. Our wards meet these regulations, being 12 x 15 x 9 for two beds.

The Act does not set out minimum ceiling heights in basements, operating rooms, or case rooms. In view of the fact that part of the staff must work in the basement the same rule should apply, *viz.*, nine feet.

Operating rooms, case rooms, and sterilizing rooms should be not less than eleven feet, for the following reasons:

1. It is a physical impossibility to hang an operating room light from a nine foot ceiling and have it work to full efficiency. The same applies to case room lights. Ten feet is barely enough, eleven is fair, and twelve is correct. Ours are eleven.

2. These rooms will be much nicer to work in with a ceiling at eleven feet and preferably twelve, as there will be sufficient air space above the head to take care of part of the heat.

The north wing.—I have already stated that the operative, obstetrical, and diagnostic equipment should be housed in the north wing, and closed off from the main corridor. There are

points with respect to the various rooms in this suite which I think are important.

The x-ray room and laboratory.—These have been combined, and we hope will later include other equipment, such as a basal metabolism machine, diathermy, ultraviolet, etc. The room at 12 x 16 feet clear is none too large. There may be some argument against such an arrangement, but the following reasons may be stated in its favour.

The technician in a small hospital is generally a matron or a nurse who can do simple laboratory work, such as blood counts, urinalysis, a fair amount of x-ray work, etc. Being the only one doing it she should not get in her own way, as only one piece of work can be done at a time.

The dark room must not be one corner of the x-ray room. This mistake is serious, as it wrecks the x-ray room, but for some reason unknown to me recurs repeatedly. The x-ray room must be of sufficient size to house the machine, and accommodate a bed or stretcher wheeled in beside it for x-ray of fractures which should not be moved.

Other diagnostic and therapeutic equipment such as a basal metabolism machine, inductotherm, etc., will probably be operated by the same person, and the x-ray room is the logical place to house it.

The doctors' dressing room.—This room need not be large, but its necessity was urged by the Department, and the convenience it offers amply justifies the space required. It should be located close to the operating room and case room; in our plan adjacent to the operating room and across the hall from the case room, and equipped with a telephone for the benefit of the nurse on duty in the case room. The toilet, basin, and shower occupy the same space as the dark room, and offset it so that there is no wasted floor space.

The operating room.—The Act requires that this room be at least 14 x 16 with ceiling height not specified. In view of the fact that even recently constructed hospitals contain operating rooms with insufficient ceiling height to have the light function properly, and in addition are unnecessarily hot, this regulation should be included. As a general principle I believe that the regulations should require 14 x 18 x 11 as minimum for this room. This floor space provides six feet from ends and

sides of table to walls, and a ceiling height of 11 feet, provides adequate air space above the head to be reasonably cool, and sufficient room to have the light function to full advantage.

This operating room is 14 x 20½ x 11, and ceiling ventilated. The original plan had the scrub basins inside the operating room, leaving 14 x 18 clear floor space. We finally set them outside the room, and I believe that the extra 2½ feet might be used to better advantage by enlarging the sterilizing room to 14 x 14½, instead of 14 x 12 as we have it.

The sterilizing and nurses' work room.—Mr. Erikson states in his article that, "The nurses' workroom should not be the lamb sacrificed on the altar of the operating and case rooms. It should be large enough to make a really comfortable workroom, with not less than 60 to 80 square feet of clear space, with cases, closets, basins, work tables, and sterilizers outside of this area."

The usual set-up is a room about 8 x 12, sandwiched between the operating and case rooms, housing the sterilizers, and perhaps a cupboard, but too small for a work room. The scrub basins should be so located that the operating room is in full view, and preferably outside it.

This sterilizing and work room is 12 x 14 x 11, ceiling ventilated. The sterilizing equipment is set on an outside wall, the north, and occupies not more than 3 x 12, conceding the whole wall. The scrub basins are set on the partition between the operating and sterilizing room, with a window above them, thus permitting full view of the operating room. The main stack from the boiler got in the way as usual, so we put it outside the building, and the cupboard will go on the west wall. The south wall houses a recessed work table, similar to an ironing board. This table is 24 x 72 x 36 inches high, and can be dropped down when needed for the preparation of packs, and folded up when not in use.

This arrangement meets Mr. Erikson's requirements fairly well. The sterilizing equipment occupies the north wall, 3 x 12, 36 sq. ft.; the basins on the east wall, 2 x 14, 28 sq. ft.; and the cupboard on the west wall 1½ x 14, 21 sq. ft., a total of 85, leaving a balance of 83 sq. ft. of clear space when the table is up, as it ordinarily will be, and fairly decent work room when it is in use. I believe that the room could be enlarged to 14 x 14½ with advantage to all

concerned by reducing the size of the operating room.

The point I wish to emphasize is that the work room is not given sufficient consideration, with the result that the nursing staff has to work in a room that is too small to begin with, probably overheated by sterilizing equipment, and not uncommonly a nice hot stack from the boiler room. It may not be possible to eliminate all these, but the stack can be put outside the building, the sterilizers on an outside wall will do much to reduce steam, windows on two outside walls will provide circulation of the air, all of which coupled with adequate floor space and ceiling height and ventilation are at least an attempt to improve this room.

Case room and labour room.—There may be some conflict of opinion as to the necessity for separate operating room, case room, and labour room in a hospital of this size. I believe that a maternity service of one hundred cases per year certainly deserves its own rooms, and this belief is supported by recent legislation of our Provincial Government, in allotting 40 points for the labour room and 90 for the case room, a total of 130, or 13% of the basis on which our maternity case rate is based. The necessity for separate operating room is obvious. The patient who is operated upon in a small hospital deserves the same consideration as a patient anywhere else, hence the small hospital operating room must be on a par with any other.

This case room is 12 x 16 x 11 feet, which is none too large, but by installing either the hinged foot piece or retracting type of table should be adequate.

The labour room is 9 x 12, adjacent to the case room. Both rooms are closed off by two sets of doors from the main corridor, which should reduce the disturbance to patients on the wards to a minimum, a matter of importance in a plant of this size.

Stores and apparatus room.—This room houses the following: Chimney and ventilator from the main kitchen. Food lift from the main kitchen. Linen lift from the laundry. Linen chutes to the laundry. The stretcher, so that it will not be an eye-sore sitting in a corridor.

Miscellaneous points.—Fowler beds throughout, matched pairs, right and left. Bedside tables, matched pairs. Beds at right angle to main corridor with head to outside wall. No direct sunlight to patient's face. Floors, lino-

leum on fir throughout. Patient's bed lamp is mounted on head of bed, "Decker lamps".

In view of the fact that the organization of municipal hospital districts and the erection of small hospitals in this Province is proceeding at a very rapid pace, I respectfully recommend:

1. That our Department of Public Health make a survey of all the municipal hospitals in this Province to ascertain the various features which have been found desirable and otherwise, and having done so that either the department or whoever it may designate, draft floor plans of hospitals of various sizes, which would be available for the benefit of those interested.

2. That the regulations with respect to municipal hospitals be so amended that glaring blunders cannot occur.

And finally, in view of the possibility of the expenditure of millions of dollars on hospital construction throughout the Dominion in the next twenty-five years or so, I respectfully recommend that a department of hospital research be set up under the National Research Council of Canada, under the direction of a man who has at least the following qualifications: (1) A degree in mechanical engineering. (2) Five years experience in hospital administration. (3) Capacity for original design. (4) Research experience. (5) Experience in building construction and design. (6) A knowledge of research facilities.

ACKNOWLEDGMENTS

1. *The Department of Public Health*, for providing literature, plans of other recently constructed hospitals, and the suggestions and co-operation of the officials of that department. The most enlightening article is by Carl A. Erikson, of the firm of Schmidt, Garden, and Erikson, Architects, Chicago, who by the way designed the Chicago Lying-in Hospital, entitled "Housing the Small Medical Centre", and in it he sets out certain principles which should be followed.

2. *The inspection of other hospitals.* Our building committee visited six other hospitals within range, and we are deeply grateful to those in charge for indicating to us certain features which they had found desirable and otherwise in practice.

3. *Consultation with professional colleagues*, matrons, and nursing staffs of our own and other hospitals.

4. *Direction and suggestions* made by an old friend, J. Bruce Hamilton, at present on the executive staff of the National Research Laboratories, Ottawa.



THE MEDICAL TREATMENT OF POSTOPERATIVE PULMONARY ATELECTASIS

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POSTOPERATIVE atelectasis is still the most important acute collapse of the lung which may occur. Its treatment properly consists in prevention. This entails proper preoperative hygiene of the nose and throat and careful selection in cases of elective surgery. Very important, however, is the immediate postoperative care which is usually administered by the anaesthetist and which usually consists of CO_2 inhalations and the aspiration of mucus from the nasopharynx, throat and deeper structures if necessary.

In spite of all precautions pulmonary collapse will still occur in a certain proportion of cases. The immediate cause of the collapse is conceded to be a plug of mucus, or fibrin and mucus which seals one of the larger or smaller bronchi. The contributing factors to this event may be many and various theories have accordingly been advanced to explain why this plug should occasionally occur.

Most of these theories seek some explanation in the changes in bronchial secretion which may occur with temporary changes in hydration or acid-base balance during operation. Irritative effects of the anaesthetic have also been blamed for this change in the bronchial secretion. Depression of the cough reflex due to the anaesthetic, or due to the pain of an abdominal incision have been invoked as accessory factors in keeping the plug in place in the bronchial tree, while tight abdominal binders restricting diaphragmatic and lower thoracic movements have been blamed for the same occurrence.

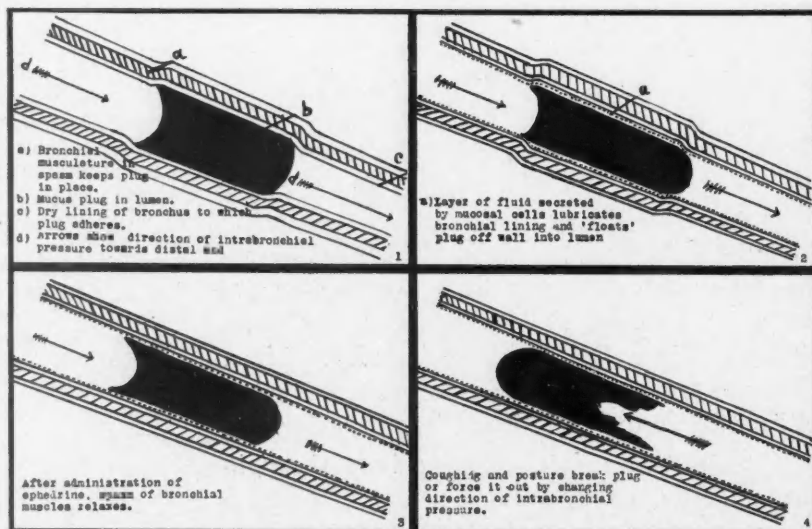
No matter how the bronchial plug is formed the result is the same. Air in the alveoli distal to the plug is absorbed and collapse of these alveoli occurs. The clinician is then confronted with a patient who exhibits the

familiar picture of postoperative atelectasis with its fever, shallow respirations, cyanosis, and chest pain.

The problem is to remove the plug. Once this is gone the affected alveoli will usually re-expand and all symptoms disappear. Bronchoscopic aspiration can, of course, be done and must always remain as the final method of choice when others fail, but it is usually unnecessary to resort to this measure which is in itself an operation. Most men are loath to expose a sick postoperative patient to the traumatizing experiences of a bronchoscopic examination if simpler measures are available. It has been the author's experience that simpler measures are often neglected which is the reason for reporting the subsequent cases.

Sometimes exceedingly simple procedures such as a slap on the back, encouraging a hard coughing spell, or posturing the patient, will dislodge a bronchial plug. Often, however, these measures fail and in such cases a more detailed knowledge of the mechanics of the bronchial tree may aid in rational therapy.

Once the plug is firmly in the bronchus and atelectasis has occurred it may be assumed that there is a great deal of spasm. Indeed it is this bronchial spasm which probably contributes greatly to the shallow respirations and cyanosis seen in these cases, as it has been frequently observed that a relatively minor degree of atelectasis will cause a great deal of cyanosis. An atelectasis of minor degree could not be expected to cause cyanosis by the fact



Figs. 1 to 4.—Diagrams of the author's conception of conditions in the involved bronchus during atelectasis and during the phases of therapy outlined.

that the blood going through its area is not oxygenated or by the embarrassment it causes in shifting the heart and great vessels.

Bronchospasm is then an important factor which must be considered and must be eliminated in any rational treatment. It is probably this spasm which defeats the very simple measures of slapping the back or coughing, as the lumen of the bronchus proximal to the plug may be narrower than that surrounding the plug as envisaged in Fig. 1.

Another important factor which must be considered is the dry viscid nature of the plug.

Preoperative atropine may contribute to this. This causes it to adhere to the bronchial mucosa so that any expiratory efforts such as cough which tend to dislodge the plug must be extreme. If the plug could be liquefied it might simply flow out of the bronchial tree. Failing efforts to liquefy the plug itself, it might be possible to introduce enough liquid on to the bronchial lining so that the plug would not adhere to the mucosa but would simply slip or float away if the bronchial spasm were reduced (Fig. 2).

Of course the plug might slip or float the

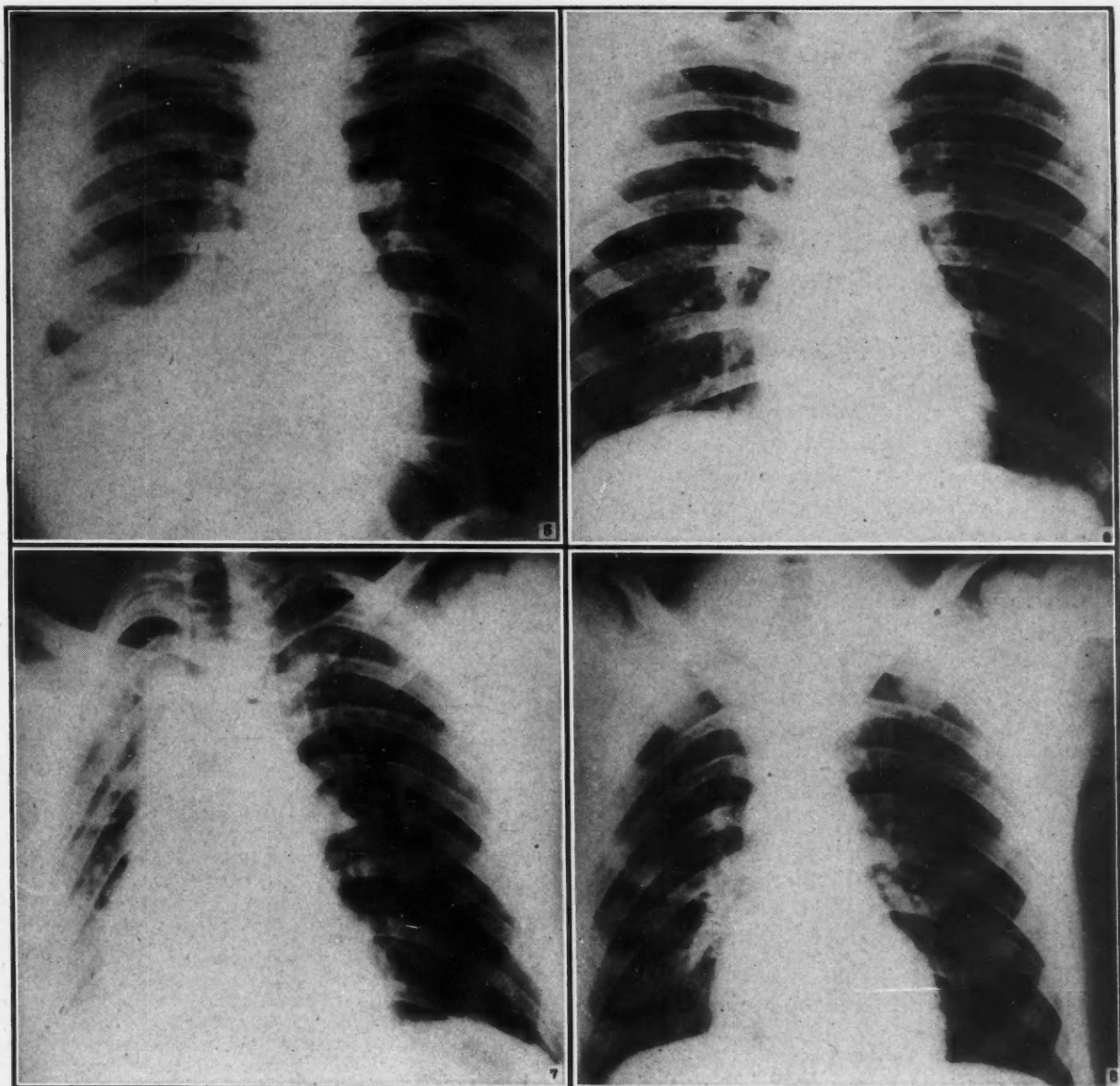


Fig. 5. (Case 1).—Shows the chest plate taken March 8. This plate was taken shortly after therapy was started so the collapse is not as complete as it might have been if plate had been taken somewhat earlier. However the extensive collapse shown by dense shadows in the right lower lung field is still visible. **Fig. 6.**—Shows the complete clearing of these shadows in the plate taken March 10. **Fig. 7.** (Case 2).—Shows the collapse of the right lung with mediastinal and tracheal deviation to right before therapy was started. **Fig. 8.**—Shows clearing of the shadows three days later.

wrong way, *i.e.*, deeper into the bronchial tree, so that two other factors must be considered. One is gravity. Most plugs occur in dependent portions of the lungs and to have them slip out it would be necessary to reverse the relative positions of the bronchial tree and alveoli. Another more important factor is the intra-bronchial pressure proximal and distal to the plug. Atelectasis having taken place by absorption of the air distal to the plug intra-bronchial pressure and pressure from surrounding structures will tend to drive the plug in deeper. An expulsive force to drive the plug out of the bronchus should therefore be considered.

Collecting these factors, there are four important things to consider and correct in post-operative atelectasis. (1) The dryness of the bronchial plug. (2) Bronchospasm. (3) Gravity or position of patient. (4) Relative pressures in the bronchial tree.

An attempt can be made to remedy each of these factors and the resultant combined action is often successful in curing the atelectasis.

Dryness of bronchial plug.—It is not expected that the plug itself, once formed, can be easily liquefied, but if the bronchial mucosa can be made to secrete a thin watery fluid this will surround the adherent plug, which will then tend to float off. Any good expectorant should serve the purpose. Potassium or sodium iodide would be useful in this regard. In our hands large doses of ammonium chloride have served very well.

BRONCHOSPASM

The bronchial tree dilates and contracts with respiration. The most powerful agent in relaxing the bronchial musculature is adrenaline. Ephedrine is, however, satisfactory. Given in dosage of one-half grain hypodermically it has proved very efficacious. The bronchial dilator is best given some time after the expectorant so that bronchial secretion is already present. Twenty minutes or thereabouts should be allowed between the oral expectorant and the hypodermic bronchodilator (Figs. 2 and 3).

Gravity and expulsive force can now be called in to aid in the expulsion of the plug by posturing the patient and encouraging him to cough some 10 to 20 minutes after the bronchodilator is given.

The posturing and cough can be repeated every hour, the expectorant and bronchodilator every four hours. It is not expected that this method will succeed in all cases but it is well worth a trial. If it fails and the patient has no relief after 24 hours, bronchoscopic aspiration can always be done.

There is no risk in delaying bronchoscopic aspiration for this length of time even if the patient is somewhat uncomfortable, provided the possibility of lung suppuration can be minimized. Adequate prophylactic doses of sulfathiazole or sulfadiazine should therefore be given with the above therapy.

The following cases illustrate the procedure advocated. Since it has been adopted bronchoscopy has not been necessary in any of the cases occurring at the Montreal Military Hospital.

CASE 1

M.R., an 18-year old sailor was admitted for tonsillectomy March 2, 1944. Tonsils were removed under local anaesthesia using a nupercaine spray and 2% novocaine injection on March 7. Preoperative sedation consisted of nembutal gr. i ss at 8 a.m. This was repeated at 8.30 a.m. at which time atropine gr. 1/150 was also given. The operation was done at 10 a.m. and morphine gr. ¼ was given postoperatively.

At 4.45 a.m. on March 8, he was given morphine gr. ¼ again. At this time some bleeding was noted coming from the tonsillar region.

At 8.00 a.m. he complained of pain in the chest and became cyanosed. Temperature at this time was 101°, pulse 112 to 120. On examination he seemed in marked respiratory distress. The *alae nasi* were moving.

The right chest barely moved and the heart was markedly displaced to the right. Percussion and breath sounds were impaired on the right side. A diagnosis of right lower lobe atelectasis was made.

Mist. Ammon. Chlor. oz. ss was given at 10 a.m. Twenty minutes later one-half grain ephedrine was given and a short time thereafter patient turned on his left side and encouraged to cough. He brought up a large amount of clotted bloody sputum, and immediately felt much better and colour improved. Sulfathiazole was started gr. xv q. 4 h. at this time.

An x-ray secured shortly after this still showed some collapse of the right lung. In view of this, treatment was repeated q. 4 h. and posturing done 10 minutes in every hour. He experienced complete relief of his symptoms. An x-ray taken two days later was completely clear (Figs. 5 and 6).

CASE 2

A.T., a 22-year old private was admitted on April 11, 1944, complaining of abdominal pain. On April 13, an appendectomy was performed. Preoperative medication consisted of morphine gr. ¼ and hyoscine gr. 1/100. Spinal anaesthetic was used (pontocaine glucose) with the height of anaesthesia approaching the T5 level.

Very soon after the operation patient began to complain of cough, copious purulent expectoration, pain in the mid-chest and difficulty in respiration. Temperature and pulse were elevated. When examined on April 14 he was cyanosed, respiration was grunting and shallow. Thick muco-purulent material adhered to the lips and throat. The right side of the chest barely moved with respiration. The heart was displaced to the right and

percussion was impaired over the right lung. Expiratory rhonchi were present.

A smear of his sputum showed mixed organisms and some Gram positive diplococci. Therapy was started, consisting of Mist, ammon. Chlor. oz. ss q. 4 h. with hypodermics of ephedrine sulphate gr. ss twenty minutes after the mixture. Posturing on the left side with head low was started 10 minutes after the ephedrine to be repeated for 10 minutes in every hour. Sulfathiazole gr. xv q. 4 h. was given.

There was almost immediate symptomatic relief and the temperature came down by next day. X-ray changes took somewhat longer to clear (Figs. 7 and 8).

CASE 3

R.V., an 18-year old private was admitted to the Montreal Military Hospital April 27, 1944, for repair of a left inguinal hernia. He was prepared in the usual manner and given preoperative sedation and spinal anaesthesia as for appendectomy cases.

Operation was performed on May 2. On May 5, he developed pain in the chest, cough, expectoration and fever. Physical examination showed a lag of respiration on the left side. Heart and trachea were deviated to the left. Percussion note and breath sounds were impaired in the left axilla and at the left base. X-ray confirmed the impression of left lower lobe atelectasis. He was put on the regimen of ammonium chloride, ephedrine sulphate, posturing and cough. Improvement was rapid and the chest was clear on clinical examination the next morning.

CASE 4

E.P., a 32-year old sergeant-major was admitted to the Montreal Military Hospital, May 8, 1944. He had broken his left leg July 1, 1943, and was admitted due to persistence of pain and swelling. On May 23, 1944, he began to complain of epigastric pain. Pains were variable for the next day or two then became steady and his appendix was removed under spinal anaesthesia on May 26. Preoperative sedation was given as in

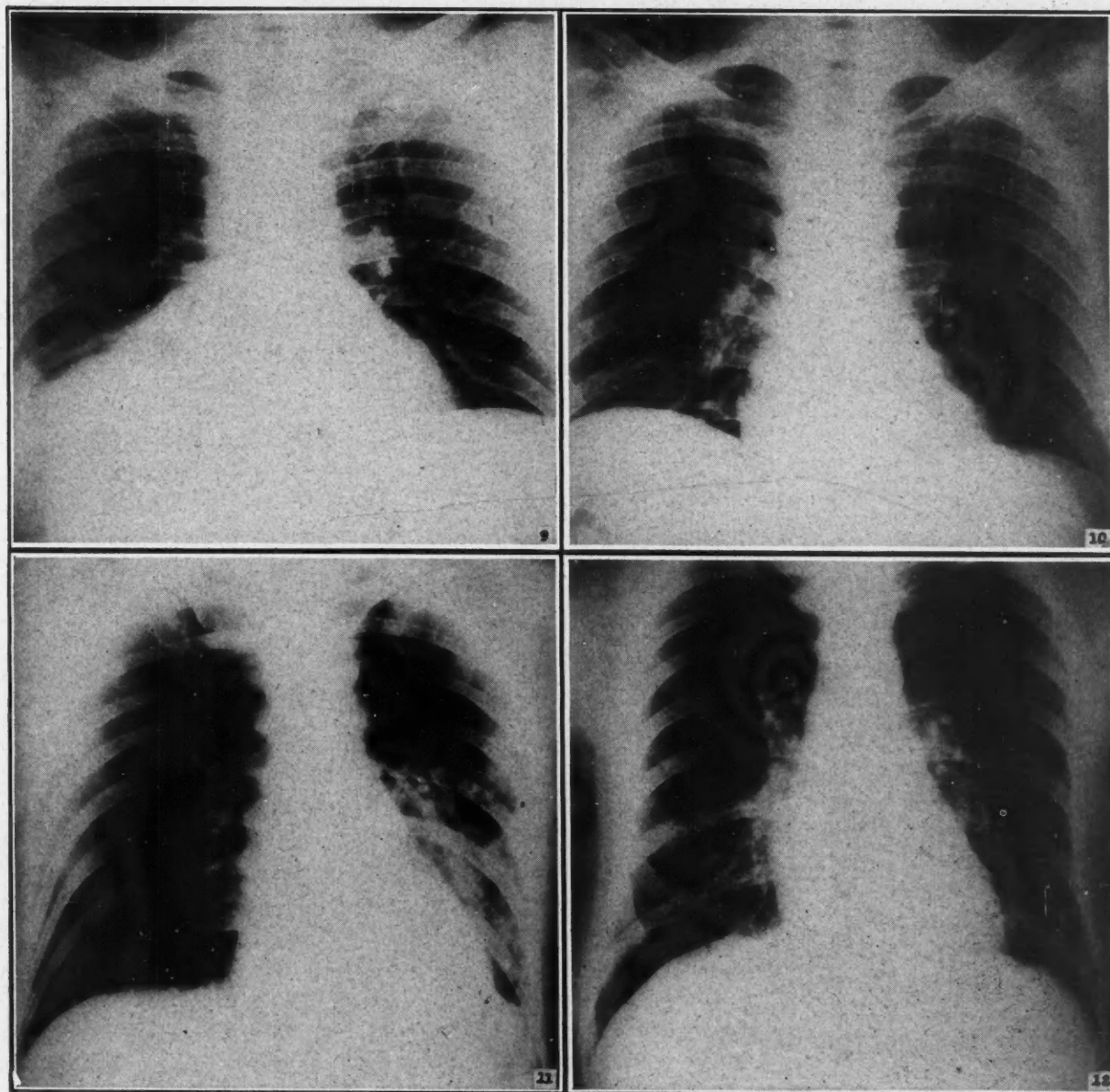


Fig. 9. (Case 4).—X-ray taken May 29 shows the dense shadow at the right cardio-phrenic angle and the raised hemidiaphragm indicative of atelectasis. Fig. 10.—Shows the complete clearing in a plate taken May 30. Fig. 11. (Case 5).—X-ray of July 6 showing dense shadows in left lung and some shift of the heart to the left. Fig. 12.—Lung fields practically normal on July 10.

Case 2. On May 29, he developed fever, pains in his right chest, cough and expectoration. Physical examination showed impairment of movement at the right base. There was impaired percussion in the right axilla and the heart dullness was shifted to the right. There were some crackling râles at the right base.

X-ray confirmed the clinical impression of right lower lobe atelectasis (Fig. 9). He was put on the regimen outlined of ammonium chloride, ephedrine sulphate, posturing and cough with immediate improvement. Next morning the clinical and x-ray signs were practically normal (Fig. 10).

CASE 5

D.S., a 36-year old private was admitted for repair of a left direct inguinal hernia June 26, 1944.

The operation was performed July 3. He began to have fever and cough almost immediately afterwards. On July 5, the fever increased and he began to complain of pains in his chest across the lower sternum.

On examination the left side appeared flattened and did not move well. Percussion was impaired on the left side especially at the base. Breath sounds were diminished and he had crackling râles at the base. X-ray showed some deviation of the mediastinum to the left and patchy density, in the left lung (Fig. 11). He was considered to have atelectasis with some superimposed pneumonitis due to the length of time the atelectasis had been present. Therapy with ammonium chloride, ephedrine, posture and sulfathiazole was started. X-ray 24 hours later showed marked improvement in the atelectasis but some peribronchial infiltration remained which cleared in the next three days (Fig. 12).

This case illustrates the value of this form of treatment even when cases are seen late after the onset of atelectasis and infection has already supervened.

CASE 6

B.D., a 46-year old sapper was admitted to the Montreal Military Hospital for an appendectomy on July 17, 1944. The operation was done on July 18, under spinal anaesthesia with preoperative medication as in Case 2.

Twenty-four hours after operation he developed a high temperature, cough and chest pain. Portable chest x-ray showed atelectasis at the right base. He was put on the routine of ammonium chloride, ephedrine, posture and cough and began to improve immediately. Next morning his temperature was normal and he felt much better. X-ray at this time showed re-expansion of the lung.

SUMMARY

A rational method of medical treatment for postoperative atelectasis is outlined. This treatment attempts to correct the conditions in the bronchial tree when atelectasis is present. The combined treatment attempts to lubricate the bronchial mucosa, dilate the bronchial lumen and furnish expulsive force by gravity and cough.

Six cases are presented in which this method has been employed at the Montreal Military Hospital with good results.

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A FAMILY WITH INHERITED ECTODERMAL DYSTROPHY

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HEREDITARY alopecia, i.e., baldness from birth due to factors located in the chromosomes of one or both of the parents and transmitted to the child, is a rather rare condition. When combined with nail dystrophy, which is also hereditary, the condition is less common. Alopecia may be passed from parent to offspring as complete or partial lack of hair. In the complete alopecia there is no hair whatsoever over the surface of the body. In partial alopecia the head hair is usually sparse, lanugo-like and the axillary, genital and body hair is present but in amounts less than the normal.

Inherited alopecia is associated not only with nail defect but with dystrophies of other ectodermal structures. Defective teeth, absence of taste glands and olfactory sense, strabismus, stammering, mental deficiency and other conditions have been found to be associated anomalies. Some have described two classes of persons with ectodermal dystrophies, the anhydrotic and the hydrotic, depending upon the presence of the sweat glands.

REVIEW OF LITERATURE

Several reports of inherited alopecia are found in the literature. Danforth¹ cited a family from Linzenmeier in which 19 members in five generations had alopecia. Eugene Fischer² in 1910 described a family from Upper Alsace in which 15 in three generations were affected. The head was covered with thin, soft down one centimetre long. The nails of the fingers and toes were also deformed, becoming thick and rough, and the teeth decayed early. Gossage,³ Berglund,⁴ Gillespie,⁵ Fantham,⁶ Brain⁷ have also reported families with hereditary alopecia.

Reports of alopecia combined with nail dystrophy are somewhat rarer. Barrett,⁸ Eisenstadt,⁹ White,¹⁰ Nicolle and Halipre,¹¹ Jacobsen,¹² and Joachim¹³ have recorded combined

hereditary alopecia and nail dystrophy. Clouston¹⁴ in 1929 reported 119 in one French-Canadian family who had inherited nail defects, alopecia, and other ectodermal defects. He notes that such ectodermal dystrophies are rare in the literature but "comparatively a commonplace" in French-Canada "where it is peculiarly associated with the French race". Almost all the cases reported have been in French or French-Canadian families, and Clouston infers a common familial and individual source in France more than 170 years ago.

FAMILY INHERITANCE

The family reported here is a Western Ontario family, claimed by several of its members to be of French origin. In it the ectodermal defect has been traced through six generations, 64 of 265 family members being affected. Of the 64, 25 have the ungual defect only, while the remaining 39 have both ungual defect and alopecia. However, most of those stated to have the ungual defect alone could not be examined and there is no doubt that at least a few of these have some abnormality of hair growth or structure unnoticed by the unsuspecting informants.

Of the 64 persons with the defect 57.8% (37) were males and 42.2% (27) were females; but the total number of males (125) was slightly greater than the total number of females (120) in the family. In the six generations 29.6% of the males and 22.5% of the females were affected.

TABLE I.

INCIDENCE OF ECTODERMAL DYSTROPHY

Known relatives	Affected	Percentage affected
Males	125	37
Females	120	27
		29.6
		22.5

TABLE II.

PARENT-CHILD RELATIONSHIP

	Total male offspring	Total female offspring	Affected male offspring	Affected female offspring	Percentage of children affected
Affected fathers	39	34	25	13	52.1
Affected mothers	26	26	12	13	48.1
	65	60	37	26	50.4

Roughly then the number of males affected is equal to the number of females affected, the slight preponderance of males being due to the elements of chance.

The transmission of the defect through affected parents is shown in Table II.

It is observed that half the children of affected mothers and normal fathers, and normal mothers and affected fathers are themselves affected. The remaining half are normal. It seems highly probable, therefore, that the defect is transmitted as a non-sex-linked dominant. The fact that no affected children were born of normal parents corroborates this.

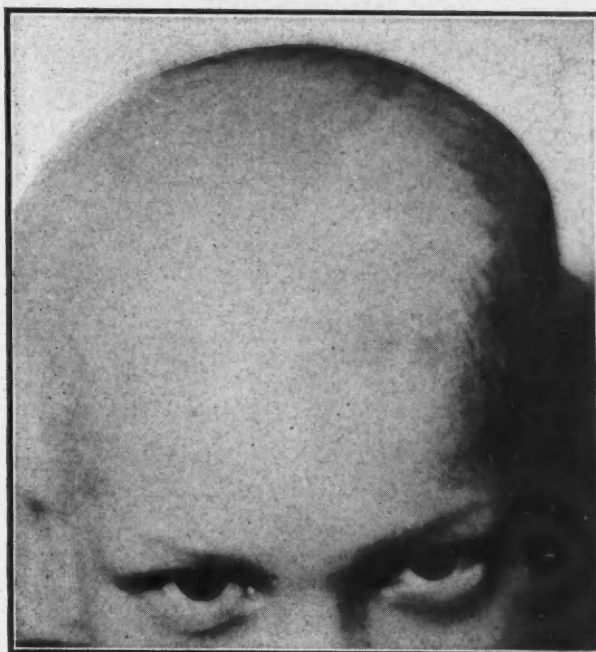


Fig. 1.—Girl, aged 9, showing very slight development of hair and eyebrows.

As far as is known normal offspring of affected parents have not intermarried. In such a case we should expect all the children to be normal. Nor has a normal offspring of affected parents ever married a person with the defect; here we should expect that half of the children would be affected. In other words it is probable that in this family a heterozygous condition of the chromosomes is sufficient to

cause the defect, and if any factor at all is present in the chromosomes it will be externally manifested.

More than twenty persons with the defect were personally examined. A summary of the observations is given below:



Fig. 2

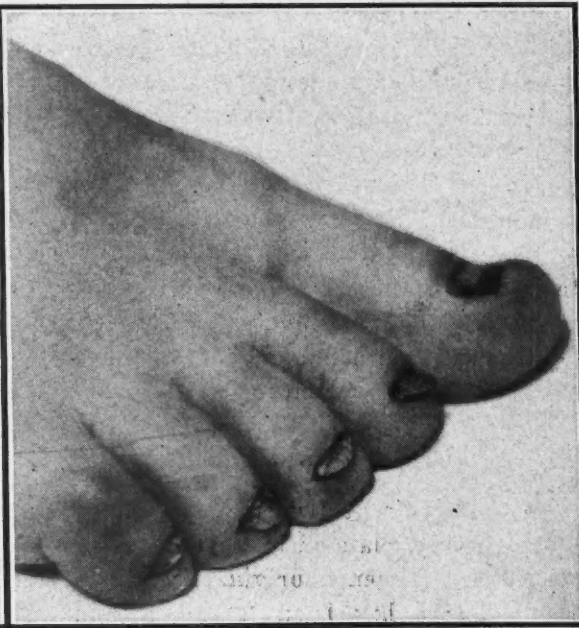


Fig. 3

Fig. 2.—Hand of girl, shown in Fig. 1, showing commonest nail deformity and enlargement of distal phalanges. Fig. 3.—Foot of girl shown in Fig. 1. Note toenail and phalangeal changes corresponding to fingers.

Nails.—There were three types of nail defect observed. The first occurs only in children and is uncommon. The nail is transversely more convex than normal. It is slightly smaller than normal and is not thickened. The outer third to half of the nail is not attached to the nail bed, and the centre of the free edge is a considerable distance from it. Usually the sub-ungual pocket so formed is filled with dirt and is hard to keep clean. This type in later life evolves into one of the other types.

The second type is less convex than normal and is normal in size. The nail is slightly thickened and there are several longitudinal striations, ridges and grooves. The free edges are usually irregularly convex and are flat against the nail bed. They are often chipped.

The third type may occur on the same hand as the second or more usually is seen as the only type. It is by far the commonest form of dystrophy observed in this family. The nails are shorter and narrower than normal but the thickness is greatly increased. The nail is set at an angle to the finger so that the tip is raised about $\frac{1}{8}$ th inch or more from the nail bed. Beneath the tip of the nail is found imperfectly formed horny material pushing the nail up. The free edge of the nail is thus blunt, rough and thick, collecting a great deal of dirt. The surface of the nail is discoloured, usually

yellowish or brownish, somewhat ridged and opaque. These nails in some of the family, especially the younger members, become easily inflamed and the nail then eventually drops off revealing the nail bed covered with the horny material. The inflammation is occasionally accompanied by a vile odour from the nails.

The nails of the toes were affected to a corresponding degree.

Fingers and hands.—With all types of nail dystrophy, but especially with the third type, definite changes in the architecture of the hands have taken place. The hand seems wider than normal and slightly shorter in some cases. The distal phalanges are longer, wider and thicker and often clubbed in appearance. The lateral nail folds are considerably hypertrophied. The nail is situated on the middle third of the phalanx and the free edge is usually about $\frac{1}{4}$ inch from the rounded, plump finger tip. Sometimes there seems to be a distal nail fold. In one woman one nail was bent down over the finger tip. In some persons the interphalangeal joints appeared enlarged.

Skin.—The skin of the hands and fingers is very rough, dry, thickened, often with yellowish, calloused areas. The palmar lines are deeper than normal. The skin over the rest of the body is normal in colour, texture and thickness.

One woman stated that on two sisters, a brother and herself, red circular areas about the size of a dime often appeared from no apparent cause. These were usually on the arm, had a burning sensation and disappeared after a day or so. These four persons all have nail defects.

Scalp hair.—At least 39 in the family have inherited alopecia, which in every case is accompanied by nail dystrophy. The degree of this defect varies greatly. In its mildest form there is merely a thinning of the scalp hair with slow growth. Usually the hair is fine and is often dark brown in colour. Such a mild condition could be easily passed as normal by an unsuspecting observer; this suggests that probably many of the family reported to have nail defect alone are also afflicted by an unrecognized hypotrichosis. In the more severe cases the head is covered with a lanugo-like, downy growth of fair hair. Seldom are the hairs over two inches in length. The hair is quite dry, sparse and straight. In the most severe cases only an extremely small number of short, fine hairs are present on the scalp, rarely none at all. As a rule these persons with the hypotrichosis never have needed to have their hair cut.

One man claimed that his hair "grew in" in the winter time and nearly all came out in the summer. To demonstrate this he pulled out gently several dozen hairs.

Microscopical examination reveals no abnormalities except moderate fineness and complete lack of pigment.

Facial hair.—The lack of hair is apparent also on the face of the affected males. Many of them do not need to shave at all; others shave every three or four days to every two weeks depending upon the severity of the defect. The facial hair is of the same quality as the scanty scalp hair.

Eyebrows and eyelashes.—In milder cases there is merely a thinning of the eyebrows, especially the outer parts. In more severe cases the

lateral half or two-thirds of the eyebrows are very sparsely supplied with short fair hairs. Sometimes there is simply a small oval growth of hair at the inner extremity of the eyebrow. Occasionally there is no hair on the eyebrows at all. The eyelashes are short and from few in number to completely absent.

Genital, axillary and body hair is also sparse or absent.

Teeth.—There is no inherited deformity of the teeth in any of the family. Several have



Fig. 4.—Another type of finger nail deformity (girl aged 7).

pyorrhœa and some have had their teeth removed because of this, but no deformities or abnormal characteristics have been passed from parent to child.

Mental status.—Some of the family are of a low intellectual and social status. The number of mental defectives was not determined but two suspects were tested and found to have I.Q.'s of 55 and 62 respectively. Others are undoubtedly border-line or low normal in their mental status. The two defectives tested are, however, in the same family of eleven and have a mentally

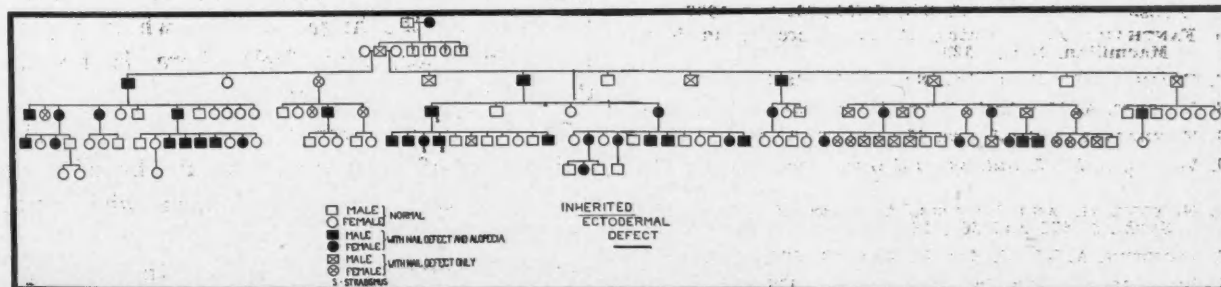


Chart 1

defective mother with no ectodermal defects and a father with alopecia and nail dystrophy; one of the morons has the ectodermal defect, the other is normal.

One of the men with the ectodermal dystrophy in the third generation suffers from long standing undiagnosed mental illness. This is claimed to be the only mental illness in the family. There is no history of epilepsy.

Strabismus.—One father and his son and daughter have an internal strabismus of the right eye present from birth. The father can see with the eye affected but the son is blind in the affected eye, because, the family claimed, he had got potash in it when he was a young boy. These three have both nail dystrophy and alopecia of rather severe degree.

SUMMARY

1. A family of 265, in which 64 in six generations have inherited nail dystrophy with or without inherited alopecia is reported.

2. The inheritance is dominant in character.

3. Three types of nail defect are described.

4. Head, facial, axillary, genital and body hair is sparse or absent in some cases: the eyebrows and eyelashes are correspondingly thinned.

5. The ectodermal dystrophy is accompanied by slight deformity of the hands and fingers especially the distal phalanges, which are enlarged. The skin of the hands is also rough and thick.

6. Three of those with the ectodermal defect also have a right internal strabismus.

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RÉSUMÉ

Une famille de 265 a produit en 6 générations 64 individus présentant une dystrophie très spéciale des ongles; parmi ceux-ci certains avaient également hérité d'alopécies à des degrés divers. Il s'agit d'une hérédité dominante. Trois types d'anomalies unguéales sont décrits. Chez certains, les cheveux et les poils sont très rares ou absents. Les phalanges sont boudinées et élargies. La peau des mains est rude et épaissie. Trois de ces individus présentaient de plus un strabisme interne droit.

JEAN SAUCIER

PSYCHOTHERAPY FOR THE GENERAL PRACTITIONER

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ONE of the fruits of World War I and especially of World War II has been the increasing awareness of the vast extent of psychiatric disabilities among the rank and file of our population. While dependable statistics are not available, it is certain that a very considerable proportion of those rejected for military service and of those discharged from the armed forces is due to emotional instability and various other "psychiatric" disorders. Eminent authorities, such as Dr. Richard Cabot,¹ Professor of Medical Jurisprudence at Harvard, have, for some time, been saying that from one-third to one-half of the patients who visit the offices of every general practitioner are suffering from disturbed emotions rather than from organic disease.

However, in the face of such evidence most general practitioners still hold aloof from the study of psychotherapy, though they must perforce practise it in some fashion—crudely, indifferently or well. This is for many reasons. One is that effective psychotherapy is often time-consuming to a much greater degree than other forms of medical practice. Another reason is that the general practitioner is discouraged by the huge volumes which psychiatrists produce, and feels there is no use attempting to learn even first principles.

There are, however, a few basic principles and points of view which would be of some assistance to those medical men who *must*, whether they wish it or not, practise psychotherapy in some degree. Some of the "a b c's" of psychotherapy are suggested in this article.

1. *There is no body-mind problem.*—Progress in psychotherapy has been greatly held up by the belief that mind and body are two separate entities which may affect one another but each of which has a relatively independent existence. As a result we still hear about the influence of “mind over matter”. Actually modern psychologists regard the human organism as a unified whole which reacts more or less as a whole to its environment. True, to certain *aspects* of the organism’s response we give classificatory terms to help our own thinking; such terms as attention, digestion, memory, metabolism, judgment, respiration, imagination, circulatory system and reasoning. We use, too, a broad classification in the terms “mental” and “physical”.

We need, however, continually to remind ourselves that by giving names to certain *aspects* of the adjustment of the organism we do not thereby establish *entities*. All of these aspects are simply manifestations of certain phases of the organism’s adjustment to the total situation. These aspects can be separated only for purposes of thinking. In point of fact all aspects of the organism’s adjustment are interlocked and it is impossible to consider any one to any degree apart from its relation to the others. If we must use the term, every case for a medical man is psycho-somatic and there is no mind-body problem since it is impossible ever to separate out the so-called “mental” aspects from the so-called “physical”.

2. *All the maladjusted are sick persons.*—Another serious blockage to the development of psychotherapy lies in the belief, widespread among medical men, that there is just one kind of sick person—the one who is suffering from an organic disease or disorder which is identifiable by examination and by the use of the objective aids provided by the clinical laboratory. Once the doctor has satisfied himself that there is nothing organically wrong, he is apt to dismiss the patient either as a hypochondriac, a malingerer, an impostor or at least as one who does not deserve his attention. It is highly important that medical men recover from this ingrained attitude. Every patient who comes to a doctor’s office has *something* the matter with him. Disturbed emotions in the shape of anxiety, morbid fears and emotional conflicts are maladjustments of the organism whether they manifest themselves in physical symptoms,

as they often do, or not. Disorders of emotional origin are often just as painful as those arising from organic causes. They certainly are just as crippling so far as effective living in the home, shop, factory or the armed forces go.

Doctors, therefore, cannot, if they would, deal merely with sick *bodies*. They must deal with sick *persons*, and persons have hopes and fears and basic psychological, as well as physical, needs. All maladjusted persons are, therefore, deserving of a doctor’s best care since it is his job to deal with any aspect of the malfunctioning of human organisms. When doctors accept this point of view there will be great strides in psychotherapy.

3. *Patients may be ill as the result of the frustrations of either their psychological needs or their physical needs.*—All doctors are willing to treat those whose physical needs for food, and drink, rest and sleep, freedom from pain and distress, and many other needs of this kind are being interfered with by organic conditions. They should be just as willing to treat those who come to the doctor’s office with psychiatric disabilities. These are suffering from the thwarting of some of their psychological needs. While psychologists differ somewhat in their lists of such needs, the following is a tentative list.

1. The need for affection; to live in reciprocal warm regard with one or more human beings—parents, brothers and sisters, teacher, employer, friends or playmates.

2. The need for belonging; to be a desired and desirable member of a group—family, community, play group or work group.

The above two needs are often classed together as the need for emotional security. Any disturbance of the normal fulfilment of this need is almost certain to result in some form of maladjustment. The individual will go to any length of extravagant behaviour—including the development of neurotic illnesses—to secure for himself affection and a sense of belonging.

3. The need for independence; reasonably to order one’s own life, and to make one’s own decisions. This need is one which human beings often have thwarted in homes where one member of the family dominates the rest, and in shop, recreational and community life where bossy and domineering individuals abound.

4. The need for achievement; to do things, to make things and to accomplish jobs. All

human beings seek fulfilment for this need in some fashion. If they can't find fulfilment through the ordinary channels of work and play they will find it in devious ways in delinquent, anti-social and neurotic behaviour. After all, being a champion safe-blower, or a champion liar, or having an illness which baffles the best of doctors is much better than having no achievement at all.

5. The need for recognition; to feel that one's behaviour and conduct merit the approval of one's peers. Here again one can win recognition in hosts of ways—by being a good doctor or nurse, or merchant, or housewife, or farmer. One can win it, too, by anti-social means. Being touchy, or hot tempered, or a gossip, or having had a great many major operations can bring the individual a form of recognition. Besides, neurotic illnesses help a person to retain the recognition of others. If a woman dislikes housework she can retain, if she is ill, the approval of others, and at the same time she gets out of the work.

6. The need for self-esteem; to feel that one's personality and conduct come up to one's own inner standards. Here again the individual may find his self-respect in worthwhile work and play, or he may find it in illnesses which allow him to avoid painful situations and yet maintain his self-esteem. The farmer who has milker's cramp can't help with the milking. He dislikes milking but feels he would merit the disapproval both of his family and of himself if he shirked his task. By developing a motor difficulty he is able to avoid the disagreeable task and still to retain the approval of others as well as of himself.

A very great proportion of neurotic illnesses are due to frustrations of the above six basic needs and to the satisfactions which the individuals are able to obtain through their illness. Maladjustments are really the result of the individual's acceptance of short-range satisfactions for his basic personality needs. It is well to remember that every neurotic illness has arisen as an answer to the problem of finding a solution to thwarted needs of some sort. The illnesses are not imaginary and the patient is seldom aware of the relation between his thwarted needs and the psychiatric disability which has developed. It would be well, therefore, for the general practitioner, instead of thinking of neurotic illnesses as something

imaginary, or mystical and bizarre, to think of them in diagnostic terms; in terms of what needs of the patient are being thwarted and how he stumbled upon the particular solution manifested in his neurotic symptoms.

It is well to remember, too, that many individuals who never come to a doctor's office have developed poor solutions to their difficulties. Bullying, bossiness, boastfulness, lying and stealing are defense mechanisms in response to insecurity and inadequacy. Withdrawing tendencies like shyness, secretiveness, suspiciousness, and over-sensitiveness are another set of poor responses to baffling situations. So are chronic fears and anxiety states. One must remember that neurotic illnesses are just one other way which many individuals use to find solutions for their difficulties. They are no way different in kind and no more magical than the defense mechanisms and withdrawing mechanisms listed above. If medical men would look upon neurotic symptoms as the *result* of underlying emotional dissatisfactions, and frustrations of basic needs they would be able to make an intelligent attempt at psychotherapy.

4. *Ineffective methods of psychotherapy.*—(1) Ordering, forbidding and authoritarian firmness. Because of the authoritarian position of medical men and the definiteness of their findings in the organic realm, many doctors try to lay down the law to patients with neurotic illnesses. It is analogous to the situation of those who appear in courts and are let off with a warning, or where, if it is a juvenile delinquent, the parent is "warned and advised". Trained social workers and the more enlightened of juvenile court judges and probation officers have long since given up this method of treatment for the very good reason that it seldom works. The underlying emotional dissatisfactions which result in delinquency or criminality remain untouched by the warning in most cases. Doctors must learn that, in the case of patients with disturbed emotions, telling them ever so emphatically that they should forget their fears, or their pains, or their quarrels and settle down and be normal, does little good. Even if an emotionally dependent patient accepts the doctor's say-so that her appendix is quite all right, it does not solve the underlying emotional conflict which soon takes another manifestation.

Herein lies the difficulty of physical examinations as psychotherapy. With normal patients

who come to the doctor, anxious lest they have cancer or syphilis, a thorough physical examination with the assurance that they are all right is all that is needed. But with patients who have a basic emotional conflict, a thorough physical examination backed by the doctor's most positive authoritarian statement that there is nothing wrong is very ineffective. The reason is that there is something wrong with the patient, and the patient knows there is. So he says: "another stupid doctor" and keeps going from one physician to another, or to a chiropractor or to a quack. Medical men are apt to be annoyed in such an event. They should not be annoyed. Rather they should learn to distinguish between patients who *can* be expected to profit from being told there is nothing wrong with them, because there isn't, and patients who cannot profit by all the doctor's dicta since there is something wrong with them.

(2) *Exhortation*.—Many doctors who can find nothing organically wrong with a patient, try the device of a "pep" talk. They try to give the patient an emotional build-up and then to "peg" him at the level of his good intentions. Such physicians should notice the number of backsliders after an evangelistic campaign or even after a good Sunday sermon. If there is genuine emotional dissatisfaction and frustration exhortation will do little good. In a few days at best the patient will slip back to his old symptoms with the added discouragement and lack of self-confidence which has accrued because of his failure. Experience has shown that exhortation, pledges and promises are not very effective in bringing about a real change if the trouble is more than of a superficial character.

(3) *Suggestion, reassurance and encouragement*.—Many physicians try to use their authoritative position to make the patient believe that he is all right. They try to get the patient to adopt the method of Coué that each day he is getting better and better. The trouble with this method lies in the fact that it is essentially repressive. It denies that the fundamental emotional conflict or problem exists and it also denies the feeling which the individual has about the problem. Faith in this procedure has everywhere steadily declined.

In the doctor's office there is the further problem of medical treatment as psychotherapy. For decades the wisdom of giving pa-

tients a "placebo" in the form of medicine has been debated. A more serious form of this is found in the case of the very occasional physician who gives the patient an operation for appendicitis to satisfy the desire that "something be done". The trouble in the case of both of the above is that the doctor is treating symptoms rather than underlying causes. All physicians have to treat symptoms from time to time but they should be thoroughly aware that they are doing so and not expect such treatment to cure the patient. In the case of placebos or other medical treatment designed to allay the patient's anxiety, there is some positive merit in temporarily banishing fear. Fear is either identified with, or associated with, inner bodily changes which are a drain on the physical resources of the individual. Removing fear even for a period of days may be of some value since it gives nature a chance at building-up processes rather than the wasteful spending of the individual's physical resources which fear involves. However, when that is said, it must be remembered that fundamental emotional dissatisfactions and conflicts are not removed by placebos or even by operations which have no real connection with the difficulty. In a very short time the patient feels as badly as ever or develops another set of symptoms.

(4) *The giving of advice*.—Physicians must know when a patient with psychiatric difficulties *can* benefit by the giving of advice. If the individual's behaviour is a manifestation of a deep-seated emotional problem the giving of advice about overwork or underwork, or about new attitudes to sex or to members of the family is of little use. The patient in such a case finds it impossible to carry out the advice.

(5) *Intellectualized interpretation*.—Many physicians who are aware of the patient's psychological needs and who are able to discover the areas where they are thwarted are unduly hopeful about the effects of explaining to the patient the nature and cause of his difficulties. For instance, the doctor may show the patient that he is insecure or that he feels inadequate because in childhood he was compared with an older brother, but such explanation does not cure the individual of the basic *feeling* of insecurity or inadequacy which is manifesting itself in neurotic symptoms.

Experience has shown that we do not change an individual's behaviour by merely giving him

an explanation of it. The reader, like most individuals, is apt to have a foolish fear or two. Does he lose his fear of mice or snakes or whatever his pet phobia is just because someone tells him it is a foolish fear, or explains how he came by the fear? He does not.

We must remember, as will be pointed out later, that interpretation, no matter how accurate it is, is of value only to the extent to which it affects the feeling life of the patient.

(6) *Hospitalization and rest cure.*—The problem of hospitalization and rest cure for patients with neurotic illnesses is one which calls for careful study on the part of the physician. If such a form of treatment removes the patient from an external strain from which he is suffering it may be quite effective. If, however, the patient is suffering from an endo-psychic conflict, sending him to the sea coast solves no problem, since the patient takes himself and his maladjustment along. In addition, he now has more time to preoccupy himself with his own feelings and anxieties and may, therefore, be worse instead of better. This is often true in the case of hospitalization as well. The course decided upon must be determined after a careful diagnosis of the nature of the difficulty. It is necessary to decide whether the solution of the problem will be hindered or facilitated by hospitalization or rest cure.

5. *Suggested methods of psychotherapy.*—There are two main attacks from the psychological angle on the symptoms displayed by the neurotic patient. These are (1) to remove the patient from the strain causing the maladjustment, and (2) to remove the emotional strain from the feeling life of the patient.

(1) By removing the patient from the strain is meant such situations as where a woman's maladjustment arises from having to live with a difficult mother-in-law, or where a man is engaged in a job which he loathes, or works for an employer whom he despises. In such cases removing the patient from such external strain may result in the individual's recovery from the maladjustments which he had developed. It is apt to be successful, however, only in the case of individuals whose emotional life is reasonably wholesome to begin with, and where the strain is sufficiently great to be a really significant factor in the maladjustment. In child-guidance clinics a great deal of treatment is confined to removing the strains imposed on

the child by altering the handling he receives at home, at school and in the community. This policy must be followed for many adults as well.

(2) The only ultimate solution for patients with a disturbed emotional life is to do something to help them to find emotional satisfaction in new ways or to feel differently about themselves and about the situations in which they find themselves.

HOBBIES AND OCCUPATIONAL THERAPY AS FORMS OF PSYCHOTHERAPY

In the first part of this article it was suggested that many neurotic illnesses were due to frustration of the individual's needs for security, independence, achievement, self-esteem and approval. One method of psychotherapy which can do much to help the patient find outlets for the last four of these needs is occupational therapy, hobbies and diversions. Through activities in handicrafts, dramatics, gardening, games, sports and hobbies like photography, many individuals are able to find fulfilment for their needs for independence, achievement, recognition and a sense of worth. Occupational therapy and hobbies possess no magic. They are effective to the degree to which they meet the psychological needs of the person. Further, they afford a real avenue for the individual in working out aggressive and hostile feelings from which he suffers and because of which he has feelings of guilt. Such activities have an increasing place in psychotherapy.

PHYSICAL TREATMENT AS PSYCHOTHERAPY

Often physical treatment has definite psychotherapeutic effects. If a girl is cross-eyed, an operation on her eyes may change her whole outlook on life and her attitude towards herself. If a boy has a club-foot the straightening of the foot may be the finest form of psychotherapy. Physical treatment which changes the attitude of the individual to himself is, therefore, an aspect of psychotherapy.

RELATIONSHIP THERAPY

By far the most important form of psychotherapy is that in which the physician as counsellor establishes a relationship with the patient in which the latter is helped to talk out, and come to accept all his own feelings. Its most elemental form is catharsis, where the individual gets out of his system his grief, fear,

hate or bitterness. This form has always been practised by the good listener, whether physician, clergyman or friend. Confession and ventilation is a step up from the situation where the confidant is merely a good listener. Modern counselling or relationship therapy is a step further. In this, the counsellor does not pretend to have the answers, nor does he try to tell the patient what to do. He provides the setting which will enable the patient to express vividly all his feelings of insecurity and inadequacy, of love and hate and fear. The counsellor responds not to the intellectual content of what the patient is saying, but to the feeling content and helps the individual to express freely the things he would ordinarily hate himself for saying. If the patient can freely express hate for his father or his wife, or employer, this is almost sure to be followed by positive feelings and a definite plan as to what can be done about the situation. In other words, the patient must be carefully guided to express his own real feelings and frustrations and in doing so to gain *insight* into himself and his problem. Insight is a form of perception in which *all* the elements fall into meaningful pattern. The wife, for example, sees for the first time just how she, herself, has contributed to her husband's irritability or indifference.

To help patients to gain an insight into their own problem without trying to impose the counsellor's own ideas is a difficult task. It is, however, the real task of psychotherapy. Rogers² feels that even if psychotherapy must be confined to one or two interviews that the counsellor must still handle the interview in such a way that the patient finds himself through insight arrived at by the free expression of his feelings.

Insight probably means helping the patient to see and adopt long-range satisfactions in place of the short-range ones to which he has been clinging. A neurotic patient is "enjoying poor health", that is, he is getting, through his behaviour and symptoms, some sort of satisfaction for his needs for achievement, recognition and self-esteem, and perhaps security as well. He will not give up these satisfactions until he is able to see better ones. In other words, it must be more satisfying for him to be well than to be ill.

The cultivation of a relationship between physician and patient which will enable the

latter to gain insight into his own feelings and satisfactions and which will lead him to find adequate outlets through long-range satisfactions is an art to be coveted by every physician, for he must, whether he wishes it or not, practise psychotherapy to some degree.

SUMMARY

No attempt has been made to deal with the more specialized treatment of psychiatric disorders nor to deal specifically with the many forms of medical and physical treatment which have implications for psychotherapy. Rather an attempt has been made to give some suggestions to general practitioners concerning some of the elements of psychotherapy as approached from the psychological angle. If the suggestions seem over-simplified this may be put down to lack of space in which to elaborate them.

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RÉSUMÉ

Près de la moitié des malades consultent pour des troubles rattachables à des perturbations d'origine émotive. Le praticien doit connaître, au moins, les éléments de la psychothérapie. Le corps et l'esprit ne sont pas dissociés mais réagissent à la manière d'un tout que l'on pourrait qualifier de psycho-somatique. Tous ceux dont la vie n'est pas harmonieusement équilibrée sont candidats à la maladie. Les frustrations psychologiques sont tout aussi sérieuses que les lésions physiques et il faut connaître les divers besoins psychologiques du malade. Il faut se méfier à l'égard de certains malades du ton trop autoritaire et du commandement, de la suggestion, des placebos et des avis solennels. Le repos et l'hospitalisation n'aideront que là où ils écartent efficacement la tension d'une charge affective. Toute bonne psychothérapie doit viser à faire disparaître cette tension. Les violons d'Ingres et la thérapie d'occupation sont de bons moyens; il en est de même de certains traitements physiques correcteurs de grosses anomalies esthétiques. Le médecin doit arriver à gagner suffisamment la confiance et l'estime de son malade pour que celui-ci lui confie mieux ce qu'il n'ose s'avouer à lui-même. C'est en exprimant librement ses sentiments qu'il conclura qu'il est plus satisfaisant d'être en santé que de continuer à vivre dans la névrose. JEAN SAUCIER

Research reveals that the general reactions of the human body slow down or speed up, depending upon what colour the person is looking at. While blue is a relaxing colour, red makes the body tense and responses with red are about 12% quicker than with green.

THE TREATMENT OF ESSENTIAL HYPERTENSION WITH SODIUM THIOCYANATE*

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HYPERTENSION is a widespread and disabling condition contributing to the death of one-fourth of all persons over the age of fifty. The mortality rate appears to be increasing in spite of a multiplicity of therapeutical measures. The investigation of treatment therefore constitutes an important problem.

What constitutes clinical hypertension has long been a matter of dispute owing to the difficulty of establishing normal standards. This difficulty arises from the wide variations in blood pressure in apparently normal persons and also the rapid fluctuations from minute to minute in the same individual. Emotional states, posture, exertion, digestion and tobacco are common causes of such variations. The recognition of this variability has resulted in the realization that all blood pressure readings, to be significant, must be made under basal conditions.¹

Extensive actuarial surveys made by insurance companies have provided the most reliable figures for normal blood pressure. Since a condition can hardly be said to be normal if it carries with it the likelihood of a shorter life, the best criterion of abnormal blood pressure is that level above which mortality increases. A comprehensive study³ of various blood pressure groups made in 1939 demonstrates conclusively that as blood pressure increases above 140/90 the mortality rises rapidly. One may therefore consider a pressure above these figures obtained repeatedly under basal conditions to be abnormal.

Increased arterial pressure occurs in a large number of syndromes which according to pathogenesis may be grouped as neurogenic, psychogenic, endocrine, cardio-vascular and renal. However, as a problem in clinical practice, it is largely limited to the syndrome called essential hypertension. It is with this latter condition,

in which no cause is clinically demonstrable that this paper is concerned.

It is well known that hypertension produces injurious effects on the vascular system. The clinical picture encountered in hypertension is largely the result of arterial changes manifested in the ocular fundi, the brain, heart, kidneys and peripheral vessels. The rational management of the hypertensive patient therefore demands a careful appraisal of the extent to which these have been damaged.

TREATMENT IN GENERAL

Treatment of hypertension has been unsatisfactory. This has been due to the lack of understanding the fundamental nature of the disorder and to the difficulty in assessing the value of the many agents used. Evaluation of therapy is made difficult by the unpredictability of the natural course the disease will take in a given case and because variations during therapy are wrongly attributed to the specific effect of the treatment. In particular, psychic effects must be recognized. The early symptoms of hypertension are usually psychoneurotic and are accordingly relieved by the mental suggestion inherent in any method of treatment. This was strikingly demonstrated by Ayman⁴ in 1930. He showed that in a series of 40 unselected hypertensive patients seriously and enthusiastically treated by the daily administration of a few drops of dilute hydrochloric acid the symptoms were definitely improved in 82%. It is characteristic of the condition that it responds temporarily to any form of therapy; this universal psychological response has been the source of false hopes built about a multitude of drugs and devices.

At the present time the common modes of treatment are the following:

1. The patient is advised to take adequate rest, avoid mental and physical strain, eat simple foods, keep the weight down, keep the bowels regular and in general lead a well modulated life. To this is often added a mild sedative and frequently a vasodilator drug of supposed value. Of the latter, the nitrites, the xanthine derivatives, the belladonna derivatives, garlic, akineton, calcium salts, iodides, various cholines and extracts of liver, pancreas, ovaries and thyroid, and many other preparations have been found ineffective.^{5, 6} This treatment consists essentially of a regimen of good hygiene with the physician in the rôle of friend and comforter. Even when

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most carefully applied, it frequently leaves the patient with a dangerously high pressure or with severe and incapacitating symptoms.

2. Surgical intervention may take the form of removal of a unilateral diseased kidney or sympathectomy. Usefulness of this treatment is limited by the rarity of unilateral renal disease as a cause of hypertension and the, as yet, controversial status of sympathectomy as a therapeutic measure.

3. Renal extracts are, as yet, in the experimental stage and are not available for clinical use.

4. It has been said that administration of thiocyanates is the only effective treatment available.⁵ Since other therapies leave so much to be desired, it is prudent to examine carefully its usefulness.

TREATMENT WITH THIOCYANATE

Therapeutics.—The drugs in common usage are the sodium and potassium salts of sulphocyanic acid and are accordingly known as sulphocyanides or thiocyanates. The manner in which reduction in blood pressure is produced has not been definitely established but vasodilatation through relaxation of smooth muscle in the arterioles⁷ and reduction in tissue oxidation appear to be the principal factors.

As early as 1857 Claude Bernard⁸ examined the properties of thiocyanate and found it to be a muscle depressant. But it remained for Pauli⁹ in 1903 to make the first fruitful suggestions for its therapeutic use. Following his report, clinical trials were made in both Germany and America by Westphal,¹⁰ Nicholls,¹¹ Gager,¹² Borg,¹³ and others. However, due to the frequent occurrence of toxic side effects, use of the drug was largely abandoned as impracticable by the early 1930's.

In 1936, M. H. Barker¹⁴ of Chicago presented a new approach to the problem by the introduction of blood cyanate determinations and cyanate clearance tests. His studies revealed two important facts which explained the

reason for many of the failures previously obtained with the use of cyanates. In the first place, he showed that the varying reactions to the drug in different individuals were due to variations in their ability to clear the blood stream of cyanate. That is to say, in a case where renal clearance was rapid a given dose might be wholly ineffective, whereas the same dose given in a case where the renal clearance was slow might have an excellent depressor effect or even be toxic. In the second place, he demonstrated that by using as a control the level of the cyanate in the blood he could regulate the dose more accurately, avoid toxicity and obtain a significant reduction in blood pressure.

Following this original report, Barker¹⁵ *et al.*, published further experiences with thiocyanate in 1941. This report covered 246 cases on continuous closely controlled thiocyanate therapy for intervals ranging from two to ten years. The criteria of cyanate response which are used in their clinic are: (1) general clinical improvement, (2) a substantial reduction in blood pressure (30 to 60 mm. systolic and 20 to 40 mm. diastolic) associated with (3) a blood cyanate concentration of from 8 to 12 mgm. per 100 c.c. Of this series 47.5% showed persistent improvement in symptoms, clinical status and blood pressure. In addition 19.5% showed significant reduction in blood pressure with no change in clinical state. Another 9% showed symptomatic improvement without alteration in blood pressure. These combined groups show that 76% of their patients received some benefit of one kind or another from cyanate therapy. Excellent results were obtained in all age groups and under many circumstances but it is pointed out that caution must be exercised in the patient with poor renal function. Only 18 patients showed persistent toxic manifestations of intolerance necessitating discontinuance of the drug.

These two favourable reports submitted by Barker have served to revive thiocyanate treatment. As a consequence many papers in essential agreement have appeared. In one of these¹⁶ the plan of investigation is similar to the one presented in this paper.

Toxicology.—Unpleasant effects from the use of thiocyanates in hypertension may be due to (1) reduced blood pressure; (2) idiosyncrasy to the drug and (3) direct toxic effects.

Reduction in blood pressure has been held accountable for the production of angina in a few cases. It may also account for part of the weakness and easy fatigability encountered in

TABLE I.
TOXIC EFFECTS OF THIOCYANATE THERAPY

Minor	Major	Long term
Weakness and fatigue	Cerebral symptoms (aphasia, slurred speech, unsteady gait, hemiplegia)	Asthenia
Aching in muscles	Toxic psychosis	Anæmia
Irritability, vertigo, drowsiness, lethargy	Cardiac symptoms (angina pectoris, coronary occlusion, congestive heart failure)	Wasting
Rhinitis		
Thyroid enlargement		Emaciation
Pyrosis, abdominal discomfort, anorexia, nausea, rarely vomiting	Severe vomiting and diarrhoea	Dry scaly skin
Mild dermatitis, falling hair	Exfoliative dermatitis	
Decreased libido		

the early period of treatment in many patients. Idiosyncrasy to thiocyanate must be uncommon. Fahlund¹⁷ has described a case of "acute thyroiditis" which he ascribes to cyanate sensitivity. Griffith as quoted by Forster¹⁸ states that a small percentage of persons exhibit a toxic reaction to their first small dose of thiocyanate.

Direct toxic effects of thiocyanate of greater or less degree are frequent. These may be mild or minor effects often encountered at presumably safe blood levels (8 to 14 mgm. per 100 c.c.) or major effects which are more serious and are associated with higher blood concentrations.¹⁵ In addition there are the chronic effects of long continued administration of the drug. Toxic effects are summarized in Table I.

Most authors agree that symptoms of fatigue, weakness and lethargy are frequently met with during the first four to six weeks of treatment. Barker¹⁹ states that this is to be expected in 75% of cases; Kurtz²⁰ gives the much lower figure of 10%. Both agree that these are not as a rule indications for discontinuing therapy although the dose may be moderated.

CLINICAL TRIALS WITH THIOCYANATE

From the foregoing it is apparent that opinion as to the efficacy and safety of the thiocyanates may well be divided. But it would appear that in certain cases where the administration is under strict control, useful effects can be produced. In order to gain first hand experience with this therapy it was decided to use it on a number of patients under carefully controlled conditions. The method used was as follows:

1. *Selection of patients.*—Ten patients with confirmed essential hypertension were taken from the outdoor and the indoor wards of the Winnipeg General Hospital.

2. *Basal blood pressure readings.*—All measurements were made under basal conditions. In hospitalized patients this consisted of taking the blood pressure each morning before breakfast while the patient was still in bed. The estimations were made every two minutes until no further decrease occurred. In outdoor patients readings were taken with the patient lying on a bed in a quiet room. Repeated readings were taken over a period of 30 to 45 minutes until a basal level was reached. All readings were taken on the right arm with a standard mercury sphygmomanometer in conformity with the

recommendations of the Committee of the American Heart Association for the Standardization of Blood Pressure Readings.

3. *Selection of drug.*—There has been no confirmed evidence in the literature of the advantage of one salt over the other. Sodium thiocyanate and potassium thiocyanate have been used almost equally in the reported cases without noticeable difference.¹⁸ Because of the cardiac depressant action attributed to potassium²² it was decided to eliminate this potential variant by using only the sodium salt.

4. *Administration and control.*—In each case a control period of some weeks was observed, during which the patient received the benefits of rest and mild sedation. Repeated blood pressure readings were taken under basal conditions. During this period the readings gradually decreased and finally stabilized at a lower level. When this level was reached the administration of sodium thiocyanate in a salty red mixture was begun. After a reduction in blood pressure had been maintained for some weeks or months the sodium thiocyanate was left out of the mixture without the patient's knowledge and treatment in every other respect continued as before. When the blood pressure became elevated again for a time the thiocyanate was again added to the mixture so that unknowingly patients were alternately on and off the drug. Throughout the entire period of observation and treatment no change in the patient's environment or usual activities was advised, so that factors other than the drug which might have contributed to the changes in blood pressure were eliminated. At each visit, routine enquiry of symptoms referable to the various systems was made in an effort to determine whether any subjective improvement or the reverse corresponded to the changes in blood pressure.

During the course of treatment, venous blood was drawn off at frequent intervals whether the patient was receiving thiocyanate or not and the thiocyanate concentration was measured, using the special kit of apparatus and reagents manufactured by the Eli Lilly Company.

It is not suggested that psychic effects were eliminated by this method, but it is apparent that any such effects were operating to the same extent during the intervals as they were while the drug was being administered. It is felt therefore that any changes in blood pressure or in subjective feeling which occurred while

thiocyanate was being administered could reasonably be attributed to its effect.

5. Interpretation of graphs.—In each graph (Figs. 1 and 2) both systolic and diastolic pressure curves are represented by double lines. The upper line of each curve is the reading at the beginning of the period of observation and the lower line of each curve is the reading at the end of the period. The lower line of the upper curve therefore represents the basal systolic and the lower line of the lower curve the basal diastolic pressure.

Care has been taken to avoid inserting isolated or selected readings in the graphs. When a figure appears as the blood pressure for a week or any other period, it represents the average high and low of all the readings taken during that period. Thus, for example, a single point on the graph may represent the average high (or low) of repeated readings (30 to 50) taken daily for a week.

Dosage of thiocyanate in grains per day and the resulting blood level in mgm. per 100 c.c. are shown above the blood pressure readings so that the effect is readily seen. The portion of the curves which is filled in with vertical lines indicates the presence of cyanate in the blood stream and thus corresponds to the curve of blood cyanate level at the top of each figure.

Two illustrative cases are reported herewith.

CASE 2

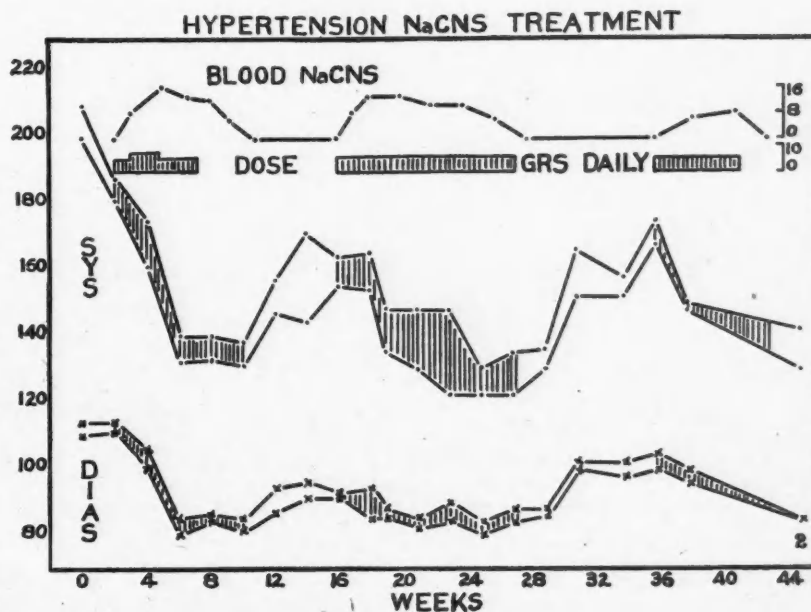
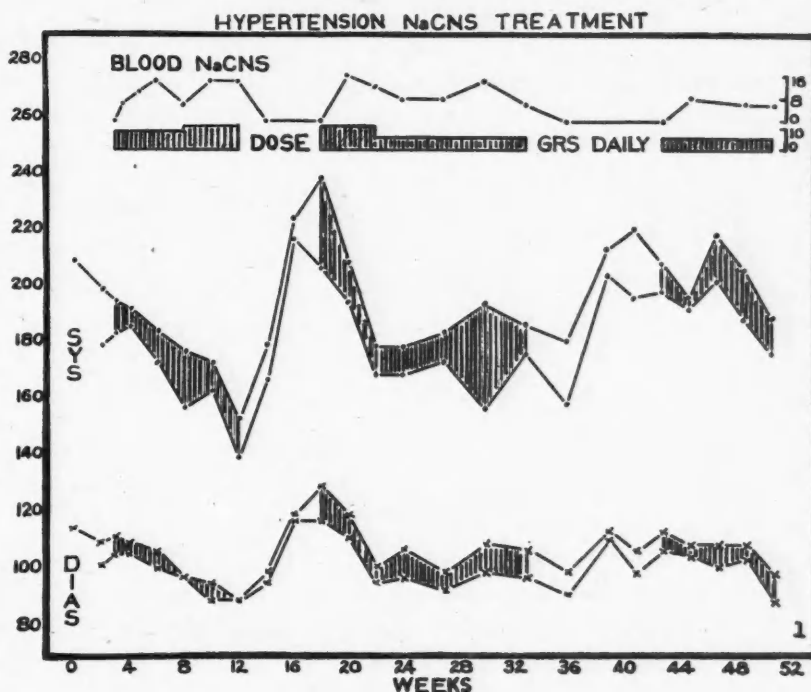
Mrs. G., a female, aged 61, was first examined in the out-patient department in 1935 at which time she was 52 and suffered from mild menopausal symptoms. Examination revealed no abnormality except a blood pressure of 180/120. X-ray of the chest was normal. The following year she returned to the clinic complaining of dyspnoea and præcordial pain on exertion. She also had severe occipital headaches which were worse in the morning. Examination was again negative except for a blood pressure reading of 230/130.

In January, 1943, she was admitted to hospital because of a severe pharyngitis. She also complained of sharp retrosternal pain

on walking or climbing stairs and severe frontal and occipital headaches.

Examination revealed a stout, plethoric woman of 180 lb. with an acute pharyngitis. The fundi and peripheral vessels exhibited moderately advanced arteriosclerosis. The heart was enlarged to the left and the blood pressure was 210/115 (Fig. 1). X-ray of the chest showed left ventricular hypertrophy with bilateral increase in peribronchial shadows. Electrocardiogram showed left axis deviation. Urinary specific gravity varied from 1.014 to 1.025 on random specimens; there was no albuminuria. Urea clearance was 46%.

She was kept in bed for 3 weeks on a reducing diet and a half grain of phenobarbital three times a day. During this period basal blood pressure readings were taken and averaged approximately 185 mm. systolic and 105 mm. diastolic. For the next two weeks she was given sodium thiocyanate, $2\frac{1}{2}$ grains three times a day. She improved clinically and was discharged to the outdoor clinic. Examination of Fig. 1 shows that a gradual fall in systolic and diastolic blood pressure occurred



until by the 12th week the systolic level was approximately 140 mm. and the diastolic level 90 mm. This represents a reduction of 45 mm. systolic and 15 mm. diastolic. She felt, in her own words, "100% better" than before treatment.

Withdrawal of cyanate resulted in a dramatic rise in both systolic and diastolic pressure. Subjectively she felt much worse and stated that her blood pressure must be up because she felt "so flushed". Resumption of cyanate therapy for two subsequent periods reduced the blood pressure and each time made her feel much better. The symptom most affected was headache; following the second withdrawal, dyspnea was much worse for a time although, as a rule, it remained about the same whether on cyanate or placebo therapy. The blood level never exceeded 14 mgm. per 100 c.c.

normal self again and has continued her usual activities without any symptoms since.

This case illustrates repeated reductions in blood pressure associated with complete symptomatic relief. During the entire treatment no toxic effects were noted. The highest blood obtained was 16 mgm. per 100 c.c. at the 5th week.

Summary of series.—Table II records clinical data. In 6 cases, hypertension was known to exist from 2 to 8 years; in 4 cases it was not known to exist prior to the beginning of this study.

TABLE II.
CLINICAL DATA: 10 CASE REPORTS

Case No	Age	Sex	Family history	Known duration of hypertension	Blood pressure when selected	Retinal sclerosis	Peripheral sclerosis	Cardiac hypertrophy	Renal function
1	21	F.	x	2 years	180/130	0	0	0	Normal
2	61	F.	0	7 years	210/115	xx	xx	xx	Reduced
3	52	F.	x	....	210/110	xxx	xx	0	Normal
4	70	M.	0	2 years	220/120	xx	xxx	x	Reduced
5	45	F.	xx	6 years	204/134	xx	x	0	Normal
6	58	M.	0	....	240/140	xxx	xxx	xxxx	Reduced
7	56	F.	xx	8 years	250/120	xx	xx	xx	Normal
8	58	F.	0	6 years	228/165	xxxx	xx	0	Reduced
9	48	F.	0	....	230/130	xx	xx	0	Normal
10	53	F.	0	....	240/140	xx	xx	xxxx	Reduced

CASE 3

Mrs. B., a female, aged 52, was brought to the casualty room by police ambulance in August, 1942. She had been picked up unconscious in a city park. Examination revealed a dazed woman with no abnormality to explain her condition other than a blood pressure of 210/110 (Fig. 2). Subsequently she stated that for a month she had been nervous and irritable with disturbance of memory and some blurring of vision.

Past history was negative; family history was irrelevant, except that her mother had died of a stroke.

She was a thin, gaunt woman weighing 99 lb. General examination revealed nothing of note except peripheral vascular sclerosis. The ophthalmologist reported the fundi as showing "very marked arteriosclerosis with no hæmorrhage or exudates". X-ray of the chest was normal and intravenous pyelogram showed both kidneys to be normal. Specific gravity of urine varied from 1.010 to 1.024 with no albumin. Blood urea nitrogen was 10 mgm. per 100 c.c. Electrocardiogram revealed left ventricular preponderance.

She was kept in bed with a sedative at bedtime for two weeks, during which basal readings averaged 180/110. She was then placed on sodium thiocyanate 2½ grains twice a day which was later increased to three times a day. Examination of Fig. 2 reveals that a marked drop in pressure occurred with the systolic levelling off at 130 mm. and the diastolic at 82 mm. This was maintained from the 6th to the 10th week whereupon the drug was withdrawn and the pressure gradually rose to 155/90. She was discharged on the 12th week with a diagnosis of essential hypertension with hypertensive encephalopathy. Following discharge all observations were made in the outdoor clinic; it is seen that reductions of the same order (25 to 50 mm. systolic, 10 to 28 mm. diastolic) were twice more obtained.

A month after discharge from the hospital and six weeks after cyanate had been withdrawn, she had another cerebral attack with loss of consciousness and vomiting. Following resumption of therapy she felt her

Single blood pressure readings leading to selection of patients are seen to be considerably higher than those taken over the control period or periods of placebo therapy. Such differences emphasize the invalidity of the "snapshot" readings so commonly taken in clinics and in office practice and on which the diagnosis and effect of treatment of hypertension are so often determined.

The degree of retinal and peripheral arteriosclerosis was graded as absent, mild, moderate, marked or severe. Likewise the amount of cardiac hypertrophy was gauged. It is seen that all patients except one showed vascular changes. Five patients had cardiac hypertrophy and five had reduced renal function.

Two patients had complications before presenting themselves, one having had a hemiparesis and the other the development of cardiac asthma.

Table III shows objective improvement as indicated by reduction in blood pressure. It is seen that a reduction in systolic pressure occurred in every case. Reductions ranged from 15 to 60 mm. with an average of 40.5 mm. Reduction in the diastolic pressure occurred in all but one case; reductions varied from 8 to 32 mm. with an average of 19.8 mm.

TABLE III.
EFFECT ON BLOOD PRESSURE

Case No.	Control period	Control blood pressure	Blood pressure on cyanate	Maximum reduction		Highest blood level mgm. %
				Systolic	Diastolic	
1	3 weeks	150/100	135/70	15	30	10
2	3 weeks	185/105	140/90	45	15	14
3	2 weeks	180/110	130/82	50	28	16
4	4 weeks	185/95	130/75	55	20	14
5	1 week	180/112	134/87	46	25	10
6	5 weeks	217/106	201/106	16	0	12
7	2 weeks	193/103	145/95	48	8	15
8	2 weeks	180/100	155/80	25	20	18
9	6 weeks	210/115	150/95	60	20	14
10	4 weeks	242/138	197/106	45	32	12

In case 6, in which the response was poor, the patient had far advanced disease with serious vascular, cardiac and renal damage. Cases with moderate arteriosclerosis exhibited satisfactory reductions.

It might be said in criticism of Table III that the control periods were too short. This objection is obviated by the fact that in most cases the patients were alternately on and off the drug and during the intervals of placebo therapy the blood pressure rose to approximately the control reading thus verifying the latter. Moreover, all readings were taken under basal conditions whereby a basal level is much sooner reached and maintained. Finally, many of the patients had been observed for months or years before the present study was undertaken.

Table IV shows subjective results of treatment.

It is seen that seven patients had relief of symptoms attributable to hypertension but one of these had mild toxic effects which were worse than the original symptoms. Of the three patients who had no symptomatic relief, all had far advanced disease with renal damage.

Mild toxic effects were encountered in four cases. In none of these were the symptoms severe enough to warrant discontinuance of therapy. However it was considered advisable to withhold the drug in case 8 where toxic symptoms appeared in a patient with known renal damage. It has been said²¹ that the appearance of any toxic manifestation is an indication to stop therapy for six months.

Congestive failure occurred in one case concurrent with reduction in blood pressure. It cleared up with no other treatment than withdrawal of the drug. This emphasizes the fact that an optimum rather than a maximum re-

duction in blood pressure should be sought in older patients.

Thus it is seen that six out of ten patients had definite symptomatic improvement while receiving thiocyanate. Symptoms recurred when they were put on placebo therapy. This improvement is in conformity with the results of others.

TABLE IV.
SUBJECTIVE EFFECTS OF THIOCYANATE TREATMENT

Case No.	Relief of symptoms	Toxic effects		Comment
		Minor	Major	
1	Marked	None	None	Much improved while on drug
2	Marked	None	None	Much improved while on drug
3	Marked	None	None	Much improved while on drug
4	Marked	Nausea, anorexia, diarrhoea	Congestive heart failure	Felt better after initial symptoms of mild toxicity
5	Satisfactory	Weakness, fatigue	None	Felt better off the drug
6	None	Nausea, vomiting	None	Therapy discontinued—severe cardiovascular and renal damage
7	Marked	None	None	Very satisfactory effect
8	None	fatigue, weakness, leg cramps	None	Therapy discontinued—felt better off drug—renal pathology
9	Satisfactory	Hair falling out	None	Satisfactory effect
10	None	None	None	Trial too short

SUMMARY

1. Essential hypertension constitutes a tremendous therapeutic problem.

2. The usual treatments are inadequate in many cases. The possibilities of thiocyanate therapy have therefore been investigated.

3. Review of the literature reveals that prior to 1936 the use of thiocyanate was impracticable due to the frequent toxic reactions.

4. A new era in thiocyanate treatment was introduced by M. H. Barker in 1936. With control of dosage through blood cyanate determinations, over half of his patients were improved objectively and subjectively. A minimum of toxic reactions occurred; the optimum blood level was concluded to be from 8 to 12 mgm. per 100 c.c. These results have been confirmed by many other observers.

5. Ten patients have been treated with sodium thiocyanate, using the method of Barker. Special precautions were taken to eliminate the psychic effects of treatment. Objective and subjective improvement definitely attributable to the action of thiocyanate was obtained in over half of the cases thus resembling the results recorded by others. Blood pressure reductions obtained in all cases averaged 40.5 mm. systolic and 19.8 diastolic. Symptomatic improvement occurred in six cases; mild toxic effects occurred in five. One case developed a transient congestive heart failure. Best results were secured in those with severe symptoms associated with the least cardiovascular and renal damage. It is apparent that by proper selection of cases the number of good results could be increased.

CONCLUSIONS

Thiocyanate therapy constitutes a valuable remedy for the treatment of essential hypertension provided that:

1. Dosage be carefully controlled by blood cyanate estimation.

2. Patients are under careful observation for appearance of toxic manifestations.

3. Renal function is not markedly reduced.

4. Coronary and cerebral vascular disease is not extensive.

5. Severe symptoms or dangerously high pressure, unrelieved by other treatment, indicate the desirability of using it.

The extent of clinical application is rather limited by these requirements.

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COMMENTS ON ABDOMINAL WOUNDS TREATED IN A CANADIAN FIELD SURGICAL UNIT

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DURING operations on high priority cases in a forward area certain observations are made. It is only in retrospect, however, that these experiences can be set down in an orderly fashion and studied deductions arrived at. It must be clearly stated at the outset that the opinions expressed below are those of the author only and are drawn from a series of 53 personal cases. All the soldiers in this series had penetrating abdominal wounds and all were operated upon. Since no cases were refused operation the group represents a cross section of those reaching an Advance Surgical Centre.

It is necessary to include in the soldier's documents the nature of the offending missile. If he is not too seriously shattered and if he had previously been under a certain type of gunfire, his account of how the wound was sustained may be depended upon. But in more than half the cases he has no idea how or by what he was wounded. He will not know whether it was machine gun fire or mortar, what direction it came from or whether he was hit by one missile or two. Generally speaking it is

easy for the surgeon to distinguish between a gun shot wound and a shell wound. The former is usually single, usually "through and through" and, having a high velocity, the wounds of entrance and exit and the visceral damage are relatively small unless the bullet meets bony resistance. They are most commonly encountered when, after a "break through", the army is advancing. Shell wounds, on the other hand, are most common during an attack on a fixed position. They are usually multiple, tend to penetrate rather than perforate and the wounds are large and the damage to organs great.

The problems of diagnosis are, firstly, whether or not the missile has penetrated the peritoneum and, secondly, of lesser importance, what region of the abdomen is involved. In regard to the first problem one sees many cases with wounds about the trunk and thighs which are non-penetrating. They are rightly sent to an Advance Surgical Centre however, because it is practically impossible to be sure of this point unless the patient is seen under a good light with all his clothes off. Under these circumstances the diagnosis may be obvious or very difficult. There is no one sign of abdominal penetration that can be relied upon at all times. Tenderness is of comparatively little value because the abdominal wall is frequently injured and often the patient is too ill to co-operate intelligently. Rigidity is a good sign but, in a very badly wounded patient or one who has an abdominal lesion with little or no contamination of the peritoneum, it is likely to be absent. Conversely it is often present in penetrating chest wounds or injuries to the thoracic or abdominal walls even though the peritoneum is intact.

Absent bowel signs are of little significance. A soldier, while fighting, eats small amounts at infrequent intervals and so, more commonly than not, one finds a "silent belly" in a man whose abdomen has escaped injury. On the other hand, active bowel signs are the best indications of non-penetration. There are exceptions to this also. An abdominal lesion causing minimal bleeding or contamination may be quickly isolated leaving intestinal movements unimpeded. Finally, useful information can be gained by inserting a probe gently into the tract to ascertain the direction of the projectile. When all else fails one may have to explore the abdomen. A correct diagnosis can be made with-

out such a procedure in all but about 5% of cases.

In through and through wounds one may be able to say with confidence that this or that quadrant of the abdomen is alone involved. In some penetrating wounds a like conclusion may be drawn if the direction of the tract is clear and there is no possibility of the bullet having been deflected by a bone. Attempts to estimate the course of a penetrating missile from the patient's account of the relative position of the enemy and his own bodily posture at the moment of impact are futile and will usually mislead the observer.

Having made the diagnosis the type of incision may then be chosen. When the internal damage cannot be localized, an upper median or paramedian incision must be used. This incision was found necessary and made in 30% of the cases. When the penetration was known to be confined to a certain area of the abdomen, right or left subcostal, transverse, right or left lower muscle splitting, and lower midline incisions were preferred and one or the other used in 65% of the cases. These gave good, direct exposure, were easily and quickly closed, and the patient could move with less discomfort post-operatively. In about 3% of cases the approach was made through the wound. This is sometimes the method of choice in tangential wounds of the flanks where the injury is chiefly extraperitoneal. Access to the abdomen by way of the thorax may occasionally be done. On the right side no indications for this approach were encountered. On the left side a thoracic incision has the virtues of being very easy to open and close, and it gives the best possible exposure of the diaphragm and the organs of the left upper abdominal quadrant. Splenectomy is greatly simplified by this approach, as is closure of a defect in the diaphragm. However, since the colon is often involved in a wound of this region, the danger of contaminating the pleura is great. Generally speaking, therefore, it is probably better to reserve this incision for cases in which there is a left-sided thoraco-abdominal wound, damage localized to the left upper abdomen, and a pathological condition in the chest requiring attention. These indications will not be present in more than 2% of cases.

Gross mortality figures are of little prognostic value when applied to the individual case. When estimating the chances of any particular soldier

the character of the wound or wounds must be the deciding factor. It is necessary to know, then, which injuries kill and which are relatively benign; which injuries are mortal and which may respond to treatment. A survey of this series shows that abdominal cases die of one of three causes: (1) Associated wounds to other regions of the body. (2) Intra abdominal hæmorrhage. (3) Toxæmia (to be defined below).

Nearly 20% of deaths among soldiers who have penetrating abdominal or thoraco-abdominal wounds are due to head lesions, thoracic wounds, crush or other injuries to extremities, etc., and occur when their abdomens are recovering or have recovered. In fact 45% of all abdominal cases have multiple wounds. Deaths from these causes should probably be classified among other than abdominal mortality figures.

Hæmorrhage is responsible for the deaths of another 20% of those who die from abdominal penetrations. It is more common than not to find the abdomen more or less full of blood at operation. In most cases the bleeding has stopped or has progressed slowly, and has never at any time caused a dangerous anæmia or a severe disturbance of blood volume for more than a very short period. The story of those who die from blood loss is different. They have a severe initial hæmorrhage losing, especially in the case of thoraco-abdominal wounds, possibly half their whole blood. They are resuscitated with plasma in the regimental area or the Field Ambulance and then evacuated. Bleeding continues and they arrive at the Advance Surgical Centre exsanguinated and in a state of severe collapse. The blood volume can be restored and the anæmia corrected by whole blood but the damage to vital tissues cannot be repaired after such a period of anoxæmia. The condition has become irreversible. They may die in the theatre during an attempt to arrest the bleeding or die hours, or even days later, after having survived the operation, of what appears to be damage to vital centres in the brain. If they cannot be operated upon immediately after their first resuscitation their chances of survival are small indeed.

But the greatest menace to life, in those whose peritonei have been ravished, is toxæmia. More die from this than all other causes combined. In this series it was responsible for 55% of the deaths (the remaining 5% being

due to pulmonary embolus, massive collapse, etc.). This term, chosen for want of a better one, covers those cases who have gross soiling of the peritoneum and who die in 12 to 48 hours of an overwhelming toxæmia or live to develop an exudative purulent peritonitis and die in a matter of days.

Wounds giving rise to toxæmic deaths require special comment since there are a variety, and have a special significance from the standpoint of prognosis.

Those wounds which result in evisceration are the most dangerous. These patients have at least one fairly large defect in the abdominal wall and often many smaller penetrations. The visceral damage is usually great and soiling of the peritoneum is a marked feature. The eviscerated gut may be small or very large in amount and is always grossly contaminated with dirt, grass, etc. Occasionally it shows signs of strangulation and is commonly the site of many perforations and divisions. Results of treatment are very depressing. One can expect two-thirds of these men to die with signs of severe toxæmia in 24 to 48 hours. The lesion is so severe that the one-third survival is clear profit.

Wounds of the colon are dangerous but by no means always lethal. The future of a soldier with a defect in his colon depends not so much on the wound itself as on the amount and nature of the bowel contents at the time of wounding, and on the associated conditions and injuries within the abdomen. When the bowel contents are bulky, moist or semi-solid as they were in the wounded civilians who were encountered, they pour out of the defect and lavishly inoculate the peritoneum with virulent toxins and bacteria. Death is usually not long delayed. The soldier on the other hand, while fighting, partakes infrequently of a concentrated diet. As a result his colon was observed to contain only a small amount of desiccated fæces. Some wounds of the large bowel were seen in which no fæcal material had escaped from the gut at all. In others a few hardened particles lay free on the adjacent peritoneum and could be lifted out. These cases caused no undue concern because they usually did well.

Certain combinations of wounds are particularly ominous. A wound of the colon associated with an intraperitoneal wound of the urinary bladder is exceptionally malignant.

The wound of the bowel may be small and the contamination minimal but by the time the patient is operated upon his peritoneal cavity will contain a dilute solution of faeces in a litre or more of urine. This reaches every quadrant of the abdomen and, in most cases, gives rise to a generalized fatal peritonitis. A similar result may be expected in those having a large bowel wound associated with considerable intra-abdominal bleeding. If the diaphragm has been perforated in the course of wounding, a disastrous sequel is even more certain.

The rectum, when wounded, presents all the unhappy circumstances encountered in the colon and, chiefly because of its anatomical location, certain additional problems have to be faced. The urethra or bladder are more commonly injured; loops of the small bowel lying in the pelvis are frequently involved; compound comminuted fractures of the pelvis occur to complicate the picture. But the one peculiarity of this injury, which leads to a high mortality, is the inevitable gross contamination of the loose cellular tissue about the extraperitoneal portion of the rectum with urine and faeces. The involvement of these tissues is more serious than the peritoneal soiling. Proper excision and drainage of this area is difficult and the patients are prone to die rapidly. At times, from the clinical picture, one strongly suspects gas bacillus infection but this may not have been the case.

One has already said that wounds of the large bowel are dangerous. It is significant to note that if cases of evisceration are excluded every patient who died a "toxæmic" death had a wound of his colon or rectum.

Penetrating abdominal wounds threaten life more urgently than do any other major wounds. The mortality among these cases is higher than any of the others treated by a Field Surgical Unit. But those who survive have less deformity and disability, and a better chance for a useful, happy life than those who have severe injuries to the extremities of the head.

SUMMARY AND CONCLUSIONS

1. Less than half the cases know the nature of the missile that struck them.
2. Negative laparotomies should not exceed 5%.
3. The lesion can be localized to a quadrant of the abdomen in about 70% of the cases.

4. Twenty per cent of deaths are due to associated wounds to other parts; 20% are due to intra abdominal hæmorrhage; 55% are due to "toxæmia" (defined above); 5% are due to pulmonary embolus, massive collapse, etc.

5. Two-thirds of those suffering from evisceration die.

6. The prognosis in large bowel wounds depends on the amount and character of its contents and on whether or not the peritoneal cavity contains a large amount of fluid such as urine and blood.

7. Contamination of the cellular tissue about the extraperitoneal portion of the rectum carries a very high mortality.

8. With the exception of those having evisceration, all cases dying a "toxæmic" death had a wound of the colon or rectum.

THE SYNDROME OF OVARIAN TUMOUR ASSOCIATED WITH ASCITES AND PLEURAL EFFUSION

(Meigs' Syndrome)

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THIS paper presents a case of multilocular ovarian cysts with ascites and pleural effusion. The subject was an unmarried female, aged 49, in whose case the diagnosis of inoperable carcinoma had been made.

CASE REPORT

Clinical history.—The family history was not relevant. The patient herself had had mumps and measles, but otherwise had enjoyed perfect health until November, 1939.

At this time she noted progressive swelling of the abdomen and that her menstrual periods were decreasing in amount. The interval between menses also appeared to be lengthening. A year later, November, 1940, the patient began to feel weak and generally run down. She consulted a physician because of the above symptoms and was hospitalized for a period of seven days. On examination her doctor found a mass in the abdomen and a right pleural effusion. The pleural fluid was thought to contain cells compatible with carcinoma. The conclusion was that the abdominal mass was an inoperable carcinoma with metastases to the lung. She was discharged from the hospital, and the family informed of the opinion and prognosis.

The patient was seen late in December, 1940, because of marked dyspnoea and apprehension.

Physical examination.—The general examination was negative except for undernutrition, the weight was only 98 pounds. There was a bilateral pleural effusion, reaching to the level of the clavicle on the right side. A pelvic and abdominal examination revealed a tumour,

irregular in outline, the size of a full-term pregnancy, slightly movable and giving the impression of being cystic. There was a sensation of crepitus about the umbilicus. The flanks were full and there were signs of shifting dullness. Rectal examination revealed hemorrhoids. The uterus could not be outlined as the mass was adherent.

The urine was clear with a good specific gravity. There was a mild secondary anemia. The blood chemistry was normal.

Several litres of fluid were withdrawn from the right chest. It was straw-coloured, of the nature of transudate, with lymphocytic cells. No other types of cells were found.

Clinical course.—The patient having learned of the previous opinion, insisted on remaining at home, where she was visited periodically for the next eighteen months. Four chest aspirations of the right pleural effusion were made during this time, with the intervening period between withdrawals of fluid gradually lengthening. The left chest while indicating that a pleural effusion was present was never aspirated. Menses ceased in December, 1941, and minor menopausal symptoms which had manifested themselves also disappeared about this time.

The patient frequently refused hospitalization and remained confined to bed until January, 1942, when she submitted to an x-ray of the chest.

This was reported as showing evidence of fluid in both pleural cavities. On the right side this extended to the sixth rib in the axillary line, and on the left side to the fifth rib. The borders of the heart were obscured by fluid. The heart, mediastinum and trachea were not displaced. The hilar shadows were not enlarged and there was no evidence of tuberculosis or of metastatic deposits in the lungs or in the bones of the shoulder girdle.

For some time the original diagnosis of a malignant tumour seemed untenable, and the syndrome of ascites, pleural effusion and fibroma of the ovary appeared to apply to this case in its entirety.

In May, 1942, there was still evidence of bilateral pleural effusion but the quantity was such that it no longer caused embarrassment. The heart was normal in all respects and the blood pressure 120/70. The tumour of the abdomen was as described previously and there was no dependent oedema. Nutrition had been maintained but there had been no gain in weight.

Operation was finally accepted by the patient and family, and she was admitted to the Montreal General Hospital on June 4, 1942. The gynaecological consultant's tentative diagnosis was a malignant multilocular ovarian cyst, and a total hysterectomy and bilateral salpingo-oophorectomy was subsequently performed.

Pathology.—The specimen consisted of uterus and adnexæ, with the right ovary being very large and measuring 15 x 23 x 28 cm. The uterus was small measuring 9 x 4 x 2 cm. complete with cervix. The cervix showed no erosion or laceration. The uterus was smooth in outline save for a rounded, firm, subserous myoma 2.5 cm. in diameter. The left ovary was irregular with rounded elevations and folded depressions. The mass was firm and yellow-white in colour. There were several cystic areas in the mass containing thin, cloudy, brown fluid, and yellow soft cheesy material. On section, the left ovary contained a few thin-walled cysts with brownish fluid. The main part of the mass was lobulated, with a white soft tissue demarcated with fibrous strands. There were areas of necrosis and liquefaction.

Microscopic.—On microscopic examination sections of both ovaries showed papillary cystadenocarcinoma. Sections of the abdominal wall and peritoneum revealed marked thickening and fibrosis with chronic inflammatory cells. There was no infiltration.

Subsequent course.—Following operation the patient weighed 78 pounds but her recovery was uneventful and

rapid. On recheck three weeks following the operation, the pleural fluid had entirely disappeared. Three years following operation the patient is alive and well, with excellent nutrition, weighing 140 pounds.

DISCUSSION

Within recent years benign tumours of the ovary associated with ascites and pleural effusion have been reported in increasing numbers. Meigs¹ in 1943 reviewed the cases to date. These now total 27, but refer to the syndrome in which the ovarian tumour is a fibroma.

Cullen, Kelley,² and others,^{3,4} have demonstrated that in lesions other than ovarian fibroma, fluid may exist in the pleural and peritoneal cavities.

In 1941, MacFee⁴ reported a case of multilocular cystadenoma of the ovary associated with ascites and pleural effusion which constituted an exception to the type of ovarian tumour which had ordinarily been associated with this complication. The predominant physical symptoms were similar to those observed in cases of ovarian fibromata with ascites and pleural effusion. Ablation of the tumour and removal of the pleural fluid likewise terminated the disease.

In the case presented in this paper, the predominating symptoms which required relief were dyspnoea and enlargement of the abdomen. In the majority of the reported cases, respiratory distress is often the symptom which requires immediate attention.

There does not exist at the present time any proved explanation why an ovarian tumour produces abdominal fluid, or for the mechanism of the hydrothorax, or whether there is a common etiology. Meigs has pointed this out and has demonstrated that the fluid from chest and abdomen are identical. He also demonstrated that particulate carbon passed from abdominal to chest fluid quickly and easily.

Cullingworth⁵ is one of the few authors who has described a thickening of the peritoneum, and whether this occurs in all cases is unknown. However in the case reported here, we were impressed with the thick and opaque peritoneum. This appearance was peculiar, and biopsy revealed considerable fibrosis and chronic inflammatory cells. The nature of this change cannot be readily explained and may enter into the explanation of the development of ascites. At the present time it is not known whether the pleura undergoes a similar change, but if it does, the low-grade inflammatory re-

action may well explain the development of pleural and abdominal fluid. It is also unknown whether the peritoneum reverts to its normal state; the presence of fibrosis would seem to suggest that it did not.

Presentation of these cases usually stimulates a discussion amongst the audience regarding similar cases that have been seen. This occurred in 1942 at the Association of American Physicians meeting in Atlantic City, and it was following this meeting that the author was convinced that this case was similar to the one described by Dr. W. Herrick.

One is led to the belief that similar diagnoses would be made if physicians were more alert to the syndrome. One also feels, that those patients considered to be cases of inoperable abdominal malignancy, deserve a laparotomy, particularly if pleural fluid also exists.

In the present instance the patient was aware of the unfavourable diagnosis originally made, and underwent undue suffering as a result, and for almost two years remained bedridden, devoid of hope of recovery. The occurrence of such a miraculous recovery, to her, has been a spectacle which has impressed one with the importance of the syndrome. The combination of ovarian tumour with ascites and pleural fluid does not always mean cancer.

It is agreed that the final diagnosis of multilocular papillary cystadenocarcinoma constitutes another exception to the type of ovarian tumour which has ordinarily been associated with pleural and abdominal fluid. In this particular instance carcinomatous degeneration did exist, but as far as known had not metastasized, nor was the pleural effusion due to secondary metastases.

These exceptions, I feel, should be included in the syndrome as they seem to present the same features and respond in the same manner when removed as do the ovarian fibromata. It is probable that the mechanism of the hydrothorax is also identical.

SUMMARY

A case of multilocular papillary cystadenocarcinoma of the ovaries, associated with ascites and pleural effusion, is presented. This is an exception to the common type of ovarian tumour associated with Meigs' syndrome, but

similar in the predominating signs and symptoms. Removal of the tumour likewise terminated the disease.

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PSYCHOLOGICAL FACTORS IN SKIN DISEASE*

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A DERMATOLOGIST discussing the connection between skin diseases and emotional factors before a forum of psychiatrists, can do little more than present the problems with which he is confronted. He is a diagnostician and deals with a highly objective ocular specialty in which, to quote Stokes, "enthusiasm for the photographic, and dominance of the photographic type of mind, is a natural consequence of his case material". This and the involved terminology of both dermatology and psychiatry tends to retard co-operation.

With the adoption of a more functional viewpoint in diagnosis and research, the need for closer co-operation between the two specialties becomes obvious. Both the over-enthusiast and the skeptic among dermatologists help to confuse the issue. The skeptic will rightly point out that emotions are very rarely the etiological factor of skin diseases; he will say that the presence of both neurotic and cutaneous symptoms does not prove a causal connection; and that in some cases the neurotic symptoms will be the consequence rather than the etiology of the skin disease. The enthusiastic dermatologists may tend to over-estimate psychogenous factors; may omit to carry out accurate investigation of sensitizing agents; and may, using a loose terminology, blame "nerves" for a variety of skin diseases. The error lies with both extremes in over-stressing the factor of

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emotional disturbances as a pertinent etiological point, and omitting to study the more intricate inter-relationship of psyche and skin.

Until recently the study of the psychogenous in dermatology has been limited to conditions in which the connection was evident. Self-inflicted lesions, hysterical gangrene and the fascinating problem of stigmatization have been studied, and some patients with neurotic manifestations have been investigated by psychiatrists. Some change has been noticeable during the last few years. Stokes in his excellent review of the literature discussed more than 80 papers on this subject. He made the important statement that psychological factors rarely appear as the sole cause of a dermatosis. He argues against the "sole cause" attitude of mind and develops a viewpoint which recognizes a multiple causation and inter-relation as more fundamental than a single isolated cause.

Both the psychiatrist and the dermatologist are confronted with the problem of specialization. Both have to be thoroughly familiar with their particular field of work and, at the same time, should not lose contact with the fundamentals of medicine and physiology. The study of psychosomatic relations in dermatology is based on a thorough understanding of the physiology of the skin and, to quote Stokes once again, "as soon as a dermatologist becomes aware of the fundamental physiology of the skin, out comes a paper on the psychological background".

The pathogenesis of many skin disorders is connected with vaso-constriction and vasodilatation. A sudden flushing of the face is a normal physiological phenomenon frequently caused by emotions. It may be perpetuated or exaggerated and may give the basis for anatomic cutaneous changes. Our knowledge of this problem, which is one of the fundamental links between dermatology and psychiatry is still limited, but some light has been thrown on the subject by recent investigators. The normal person will blush on face and neck following an emotional stimulus or a histamine injection. Williams has shown that blushing in patients with atopic dermatitis occurs on wide areas of the body with special predilection for the cubital spaces—the favourite localization of this disorder. We have confirmed this observation, not only in atopic

dermatitis but also in urticaria, toxic erythema and other skin conditions. We do know that histamine and H-like substances, as well as acetylcholine are released centrally and that emotions are one of the stimulating factors.

Gillespie, whose co-operation with the dermatological clinic of Barber has been setting an example for fruitful collaboration between psychiatry and dermatology, described, to quote one example, the case of a young man in whom perpetual blushing was found to be an expression of an Oedipus complex with associated feelings of guilt with regard to his mother—later transferred to all women he saw.

The importance of the histamine-acetylcholine mechanism in the pathogenesis of skin disease cannot be over-emphasized. Grant and co-workers have presented evidence that urticaria in their cases was produced by the release of acetylcholine at the terminations of cutaneous nerves. Hopkins and co-workers described cases in which a generalized urticaria was brought about by exposure to heat. Urticaria was produced by the following stimuli: (1) Exposure to heat, partially or generally. (2) Exercise. (3) Emotional excitement, fear and anger. (4) Introduction of acetylcholine, parenterally.

We have observed identical cases in which histamine sensitivity was present and urticaria was produced by the same stimuli as above, substituting histamine for acetylcholine. Histamine desensitization was followed by freedom from urticaria in the case of an 18-year old girl who had been suffering from a heat urticaria for 8 years. Embarrassment was the chief factor in producing urticaria in her case but exercise or a hot bath was equally effective in producing her skin symptoms. Psychiatric examination revealed her to be immature emotionally. She was brought up in a very strict environment, had no opportunity of discussing her problems with her parents or friends and developed a feeling of inferiority. Such cases are good examples of emotional instability and a hypersensitivity to a known substance.

The connection between histamine sensitivity and allergic phenomena in the "asthma-hay-fever-eczema" complex is not yet understood. The psychological factor is, however, firmly established, thanks to the basic investigations of the asthma personality by Dunbar, Witt-

kower, Gillespie and the Chicago group of psychoanalysts.

Heat regulation and the sweat mechanism are equally important links between psychological factors and skin conditions. Ziegler and Cash in an extensive study of skin temperatures among a large number of psychopathic patients observed a wide variability in reaction and concluded that cerebral heat control is centred in the hypothalamic region. The influence of sweat on the skin, on its pH, its acid mantle, and its defence mechanism, is of the greatest importance and has been extensively studied. Rogerson expresses the belief that hyperhidrosis of the palms has almost invariably a psychological background, and every dermatologist who has seen the epidemics of fungi infections, as well as the so-called dyshidrotic eczemas in medical students during examination time will readily concur. Gillespie reported the case of a woman whose hyperhidrosis began with her engagement to a man she did not love and continued because of the conflict between her sense of duty and her desire to dissolve the engagement. In some instances such connections are very obvious. Lately, I observed a male patient who was engaged in business transactions which involved interviews with bank presidents and other businessmen. This patient developed a palmar hyperhidrosis and interdigital "dyshidrotic eczema". Both hyperhidrosis and skin disease disappeared spontaneously with the successful conclusion of his business transactions.

Kuno's extensive review of the physiology of human perspiration gives great weight to the emotional factors. The apocrine sweat glands have been recognized as basically different in physiology from the eccrine glands (Schiefferdecker) and termed accessory sex glands by Way and Memmesheimer. They are markedly influenced by stimulation, by sexual and mental reactions and participate in the physiological sexual cycle. Kuno points out that there is much evidence to indicate that all sweating is centrally controlled through sympathetic fibres, and pituitrin injected into the region of the hypothalamus gives rise to extensive sweating which does not occur when it is introduced in other ways. The apocrine glands have a markedly higher pH than the eccrine glands and activity of the former tends to form

a favourable environment for the growth and multiplication of ringworm; this is an excellent example of the long and complicated chain of events which may be started by an emotional stimulus.

In other cases, we observe the connection between psyche and skin without being able to determine the physiology of the skin changes.

Gillespie enumerates various reasons why the skin is an organ of predilection for psychogenous manifestations. The skin is second only to the genital organs as the source of sexual excitement. According to Freud the entire body surface is an erogenous area in early infancy with special accent on perigenital, perianal and oral zones. By the mechanism of fixation or regression special sensitivities may linger on in certain areas in adult life. Sadger believes that perianal pruritus in old age may be explained by such a regression in some cases. Cutaneous masturbation: extensive scratching accompanied by sexual feelings, were described by Cormia and Stokes. Pearson presented an interesting analysis of intensive scratching of a previous interdigital mycosis in two patients whose behaviour to their skin lesions was a form of childish autoerotism, to which they turned because they found it impossible to have adequate emotional outlets and social relationship in real life, due to fear. In one, over-restricted environment, threat of punishment, and lack of love, resulted in hatred and castration fear. In the other, fear of super ego, and social disapproval prevented the patient from carrying out her wish to leave home and fulfill her desires; these cases are of interest because by an emotional mechanism a skin disease of known etiology, a ringworm infection, was perpetuated.

Numerous examples could be cited in which such a mechanism is in operation. Gillespie observed a case of vulvar pruritus in an unsatisfied woman whose husband suffered from ejaculatio precox, and the case of a man whose perigenital pruritus commenced after the death of his wife, both patients admitting that they derived great pleasure from scratching. However, the question of pruritus cannot be explained on the basis of voluptuous sensations only. Brack, in an extensive and very involved article postulates a threshold susceptibility to itching. He claims that this threshold for pruritus differs under various circum-

stances in normal persons. Goldsmith points out that pruritus depends upon peripheral perception both for pain and touch and that itching is received centrally in the thalamus, the cortex having little to do with it. He further observed that in the normal skin slight itching and prickling sensations occur frequently; this is probably Brack's threshold of pruritus. The degree of attention to that sensation is usually so slight that it passes unnoticed but if attention is focused on it, actual pruritus occurs. According to Goldsmith this degree of attention focused on the lesions, rather than the itching sensation was the cause of the pruritus; this probably explains why some skin diseases usually non-pruritic cause intense pruritus in some patients, *e.g.*, psoriasis.

I have seen a series of patients in which a combined mechanism seemed to be present. I have observed many cases of genital and perianal pruritus without anatomical basis occurring in European immigrants who have left their wives behind and could not afford, financially, to have them follow. Most of these men are devout Catholics and have infrequent sexual intercourse, perhaps once or twice a year, usually under the influence of alcohol. Such escapades are then followed by extensive feelings of guilt, frequently linked with the fear of having acquired a venereal disease. This focuses their attention on the genital organs and pruritus occurs. The pleasure derived from scratching seems to play a minor rôle. The perpetuation of pruritus then is easily explained by anatomical changes. Scratching causes loss of the horny layer, parakeratosis, and thickening of the skin, both by multiplication of epithelial cells and elongation of retepegs, thus leading to the histological picture of lichenification. This thickening of the skin causes pruritus *per se*, which in turn leads to more scratching as well as to more intense focusing of attention on the regions affected, thus causing fear and apprehension. This is a perfect example of a vicious circle of psychosomatic relation, and such cases may well present difficult therapeutic problems.

While topical treatment is necessary to cure the lichenification some simple psychotherapy should be used to maintain the therapeutic results. A simple explanation of the mechanism, according to the grade of intelligence of the patient, alleviating the feelings of guilt,

and the fear and apprehension, combined with some suggestion is often sufficient. A vast literature on the problem of pruritus has accumulated, many articles dealing with the question of menopausal genital pruritus. It is generally claimed that oestrogens, applied topically, by mouth or by injections, are helpful. In an analysis of menopausal symptoms it was found that only a small proportion of women suffer great inconvenience, chiefly those who have been frustrated in their emotional and sexual lives. It was claimed that the majority of symptoms have an emotional mechanism caused by a feeling of frustration and panic. Experiments have shown that in some cases of vulvar pruritus injection of pure peanut oil has had the same effect as an injection of oestrogens. I have sometimes observed a rapid healing of vulvar pruritus after hormone therapy, which was quite insufficient according to all standards; while in other cases full therapeutic doses were ineffective.

A careful case history is of great importance. Recently, I saw a middle-aged woman, complaining of pruritus on the soles for two years, treated unsuccessfully as dermatophytosis. No evidence of a mycotic infection was found and the facial expression and behaviour of the patient suggested emotional stress, though she denied emphatically any possible connection. Examination by a psychiatrist revealed that her married life was most unhappy. She resented chiefly the fact that her husband refused to take her out and stated that she has spent her evenings at home for many years, not going even to a movie. She felt most unhappy and thought of escaping from these restrictions, or in other words, she got "itchy feet". Such word symbolism or organ language such as "hard to stomach" or "I could not swallow that pill" often gives a short-cut to the correct diagnosis.

Another reason why the skin is often the site of manifestations of emotional origin may be the fact that the skin is more liberally supplied with pain afferents than other organs. It is, therefore, important in patients with deep-seated emotional trends, such as feelings of guilt, as the skin may be the site for self-punishment and masochistic tendencies. Many of the self-inflicted skin lesions may be cited in this connection. Gillespie reports a case of a young girl harbouring death wishes with

regard to her mother. She inflicted bizarre lesions on her forearms with a pair of scissors as a form of self-punishment as well as realization of her death wishes, replacing herself for her mother.

The skin is of course also an organ capable of being used as a vehicle of hypochondriac tendencies, and fear of cancer, syphilis and parasites is common. While some patients are of psychiatric interest only, skin diseases may be caused or more often perpetuated and aggravated by constant observation, scratching or picking as already discussed.

The skin is furthermore an organ of social importance connected with display and self-decoration. I hesitate to mention the use of cosmetics as a psychosomatic symptom. However, minor skin blemishes may assume great importance in some patients and constant observation and picking of acne is one of the known factors aggravating such a condition. Here, one might mention that a longstanding, itchy disfiguration of the skin may have a profound effect on the psyche and the emotional stability of the patient. Clearly, the presence of both cutaneous and emotional disturbance does not prove that the skin trouble is emotionally conditioned. O'Leary and Sulzberger both raise the question of the horse-cart relationship; which comes first and is causal, the dermatosis or the neurosis? In some allergic conditions both are part of a constitutional pattern and happen concurrently without causal relation.

A very frequent mechanism is to use a skin ailment as means of gaining sympathy and attention, or for some definite purpose such as a trip to Florida, or to avoid some work or appointment, or sexual intercourse with a distasteful partner, or generally to avoid decisions of any kind. This mechanism may occasionally be a causal fact or, more frequently, it operates in cases of allergic eczema, causing relapses and exacerbation. Every dermatologist could quote examples: I have recently observed a patient in whom a severe exacerbation occurred whenever the patient was about to begin a new job. She had strong feelings of inferiority, dislike for her mother and father-dependence and could successfully shirk any responsibility or decision by a new flare-up of her eczema. Children, especially first-born children, use this method to enforce

attention when the birth of a younger brother or sister evokes jealousy and the feeling of being neglected.

Occupational dermatitis, caused by some specific contact, is frequently perpetuated by distaste for a special job. Anxiety about the future, general fidgetiness and subsequent picking and pruritus are other features met with in occupational dermatitis, and the question of compensation frequently enters the picture. Again an example of the correlation of emotions and a skin condition of known etiology.

The possible psychogenic correlates of allergic phenomena are still not well understood. The extensive work of British and Continental investigators has been greatly neglected in the literature of allergists on this continent. Hansen stated ten years ago that allergens operate only under certain conditions and psychic constellations. The patient may show sensitivity to a particular substance at one time and not at another. Patients occasionally claim that they break out in urticaria after eating some specific food, *viz.*, tomatoes, whenever they are overtired or rundown but if feeling well, tomatoes are tolerated; skin tests are by no means infallible.

A patient may display an asthmatic attack produced by an injection beneath the skin, or an asthmatic attack which is elicited by injection into the patient by way of conversation of a topic which gets under his skin in a figurative sense.

Gillespie's analysis of the breathing relations of various emotional states to asthmatic breathing (conception of breathlessness and closed space and equivalent of asthma to weeping) is of interest and can be linked to Witkover's case in which opening a window and looking out into space could divert an attack. Diehl, and Heinichen, could change the wheal-reaction of skin tests in controlled conditions under hypnosis, and these experiments have been borne out by Sahlgreen and Marcus who succeeded in inhibiting the positive intradermal reaction to a substance to which the patient was known to be sensitive by suggesting in hypnosis that the injected allergen was a different substance. Even positive tuberculin reactions could allegedly be inhibited by hypnosis.

Most reviewers are sceptical of the remarkable feats performed by Kartamishev in hypnosis. One of his experiments consisted in producing a second degree burn with blister formation by application of a cold coin and suggesting in hypnosis that it was red hot. His therapeutic results using suggestion were most astonishing. While I have not witnessed his famous experiment I have talked to various dermatologists who were present and who described the controlled conditions of the experiment and I know Kartamishev, who is now chief of a large dermatological university clinic in Russia, and I feel that he is a most sincere and accurate investigator.

A few years ago we attempted oral desensitization to food allergy. The patient in question suffered from an asthma-eczema complex and was found to be sensitive to pork and lentils. Ingestion of minimal quantities of dialysates of this food protected him from asthmatic attacks and exacerbations of this eczema which otherwise occurred invariably after eating this food. This interesting case was posted for a demonstration before a medical society, and by mistake a different dialysate was given prior to a meal and found to have protective value. We found then that any placebo had the same effect, provided the patient believed it to be the protective substance and, further, to our amazement, it was found that pork hash presented as veal did not cause an allergic manifestation while veal, chicken and other substances presented as pork caused violent attacks. Skin tests were entirely inconclusive, and finally when the patient was told about his unscientific behaviour he gave up having asthma altogether.

While the concept of the mechanism of allergy, histamine sensitivity, and emotional factors, are still in a chaotic state, the impression that the allergic subject is a distinct personality has been gaining ground. I mentioned Dunbar, Witkover and Gillespie's work; and Rogerson's excellent summary of the asthma-prurigo child can be corroborated by the dermatologist. Most of these investigations have been made on asthmatics rather than dermatological patients and are too specialized to be presented by a dermatologist.

Stokes in a recent and excellent article summarized the personality of the eczema-prurigo patient as follows: (1) Deep-seated feeling of

insecurity. (2) Easily developed feeling of inferiority. (3) Intense self-consciousness; not egotism, but rather ultrasensitiveness. (The character of Jacob in Thomas Mann's master work shows these features, and he also mentions his sensitive skin and inflamed eyelids.) (4) Lability of mental and physical reactions resulting either in adaptability or instability. (5) Intrinsic kinetic drive: as Stokes explains, 1,000,000 volt generator. (6) Aggressiveness and disposition to command attention—compensation for 1 and 2 plus 4. (7) All or none type of reactivity. No compromise in problems or in reaction to stimuli. (8) Higher than average I.Q. (9) Tension, expressed or repressed. (10) Restlessness, not due to instability, but to rapid exploration and exhaustion of a subject by a high pressure mind of exceptional capacity. Constant exhaustion of the possibilities of the moment leads to boredom and flight rather than to rest.

Stokes, in his recommendations as to the management of such cases, is profoundly sound but too involved to be reproduced. As example, I quote his management to relax tension in a shortened way.

(a) General talk and explanation of fundamental nature of tension. Attack on the obligatory by injunction not to do, as far as possible, what patient feels must be done. In severe cases no answering mail or telephone, and abolishment of all social obligations. Provision of sanctuary, own den, playroom, etc. (b) A lecture on the "don't give a damn attitude". (c) Drill in relaxation while waiting in doctor's waiting room, substituting shrugs for jaw-clenching and teeth-grinding. Stopping of all competition in work and sport, exercise in non-competitive sports, walking. It is understood that such a régime cannot work in deep-seated neurosis but is very helpful in everyday case of tension.

To complete the picture of psychosomatic relations in dermatology it will suffice to mention briefly a variety of skin conditions in which, explained or not, emotional causation or influence is known. Besides the numerous allergic conditions the dermatoses are linked with sweating and activity of skin glands in general like seborrhœa, acne, intertrigo and secondary mycotic or bacterial infections, and such conditions as connected with capillary dilatation or constriction like rosacea, Ray-

naud's disease, etc. Some conditions have been observed for which no explanation is known so far. Eller described an increase of alopecia areata after the crash of the stock market in New York.

Lichen planus, a skin condition of unknown origin probably a virus disease, seems to occur often in times of emotional stress. Herpes simplex, definitely caused by a known virus tends to appear after various stimulants as heat, sun and emotional upset. Extramarital intercourse is a common trigger factor for herpes genitalis, an event to cause deep apprehension and fear in the unfortunate victim who invariably believes he or she has contracted syphilis. I recall the case of a medical student who experienced a urethritis, clinically resembling a gonorrhœa but bacteriologically sterile, after each extramarital intercourse, while legitimate intercourse never caused a similar symptom. In this case I was able to rule out chemical urethritis by use of prophylactics and it may be of interest to note that the patient was subject to an anxiety neurosis especially syphilophobia. He had the compulsion not to touch doorknobs with his hands, and broke many glass doors in his attempts to open doors with his elbows.

As a last example I should like to mention the rôle of suggestion in dermatological therapy. The best known example is the success in treatment of warts, especially the flat variety. Verrucae which are infectious granulomata, transmissible and caused by a virus can be cured by suggestion in many cases. The mechanism is not known but capillary microscopic examinations reveal hyperæmia around the wart following suggestive treatment. Folklore is generally a good indicator of the susceptibility of a disease to suggestion. In every country of the world some magic procedures to cure warts are known, especially among rural populations. It may be anything from covering the wart with spiderwebs to burying toad-eggs on a crossroads at new moon; all these magic procedures are effective, if the patient believes in them. Besides these obvious examples it seems to be beyond doubt that a certain percentage of our therapeutic results is based on suggestion. I have often prescribed the very same ointment, accompanied by some promising words, which has been tried unsuccessfully by some other medical man, and got

credit for a quick cure. I am sure that most of my colleagues have made the same observation. Especially suggestive is x-ray therapy which occasionally works even when the technician has forgotten to switch on the high power. Experiments with systematic fake irradiation bear out this observation. Suggestion therapy, however, is a short cut which cannot be used in most cases. Further research is necessary and today, when the existence of psychosomatic relations is conceded by most dermatologists, it is of importance to determine the scope and importance of this relation. Attempts to undertake psychological studies of supposedly non-psychogenous dermatoses side by side with the allegedly psychogenous are steps in the right direction (Obermayer, Becker, van Erve and Becker).

Dermatology as an investigative specialty is confronted with the problem of psychosomatic relation as the individual dermatologist is confronted with the problem of the therapy-resistant, emotionally conditioned case in his office. Collaboration with the psychiatrist will be indispensable for future progress.

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RÉSUMÉ

Il existe en dermatologie une multitude d'affections qui relèvent autant de la psychiatrie que des maladies cutanées proprement dites. On connaît les facteurs psychiques des urticaires acétylcholiniques et histaminiques; on sait également l'influence des émotions sur la thermo-régulation et sur les mécanismes de la transpiration. Il faut avouer qu'il existe encore beaucoup d'inconnu dans la physiologie de la peau. Les prurits reconnaissant souvent dans le mécanisme de leur production un élément psychique indéniable. La psychothérapie, seule, ou aidée des thérapies locales donnent des résultats parfois excellents. L'acné demeure une affection qui influence singulièrement la vie affective des sujets qui en sont atteints. Les dermatoses professionnelles ne sont pas exemptes de l'appoint psychiatrique. L'hypnose a pu reproduire des dermatoses caractéristiques. On a parlé de personnalité asthmatique et allergique, enfin, certaines affections cutanées, comme les verrues, disparaissent par la suggestion. Les désordres cutanés sont des affections ectodermiques très voisines de la pathologie neuro-psychiatrique.

JEAN SAUCIER

THE SURGICAL TREATMENT OF PROSTATIC OBSTRUCTION*

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THE care of patients suffering from urinary obstructions occasioned by prostatic disease has always held an important place amongst the obligations of medical practice, but today it is becoming a problem of increasing magnitude—for, during the past half century, an ever enlarging proportion of our population has come to the enjoyment of old age so that the number of prostatic sufferers has become correspondingly increased.

The proper management of these afflicted individuals constitutes a challenge to the medical profession and any innovation or improvement in our methods of treatment that will brighten the outlook for the prostatic sufferer truly may be considered an act of philanthropy.

The exact cause for benign prostatic hypertrophy in man is not known, although there is abundant evidence that endocrine factors play an important etiological rôle—a view supported by the fact that eunuchs, castrated before middle life, do not develop prostatic enlargements. This fact was recognized by our surgeons of the nineteenth century who performed orchectomy for the treatment of prostatism. White, of Philadelphia, reported a series of cases treated in this manner in 1893 and stated that many of his patients experienced a relief of urinary obstruction after castration. Contemporary opinion did not support White's claims and orchectomy for prostatic hypertrophy fell into disuse as well as disfavour. Recently, Huggins has reinvestigated the matter and found that castration does affect the benign hypertrophied prostate in man by causing the cuboidal epithelium to become flattened or even atrophic. But the fibromuscular matrix of the gland does not show any corresponding metaplasia, and little if any gross alteration in the size of the gland was observed.

Recently, endocrinologists and urologists have administered oestrogenic hormones to men who were suffering from benign prostatic enlargement with urinary obstruction. Symptomatic improvement has been reported in a few in-

stances, but the majority of observers have found that little subjective change has occurred and few, if any, objective alterations in the prostate gland have been seen. Our own experience with the hormonal treatment of benign prostatic hypertrophy has been completely disappointing. Patients whom we have treated at the University Hospital with oestrogenic hormones have derived little symptomatic benefit and in no instance have we observed discernible alterations in the size of the benign enlargement.

The relief of prostatism is therefore dependent upon surgical treatment and today there are three types of operation designed to serve this purpose—suprapubic, perineal, and transurethral prostatectomy. Each of these operations has its merits as well as disadvantages—and none of them is ideal in every case. The techniques of suprapubic and perineal prostatectomy have been evolved over a long period of time and have been so generally accepted and practised that all contemporary physicians are familiar, in a general way, not only with the techniques of performing these operations but also with the expected operative morbidity and mortality, as well as the end results that follow their performance. Most physicians, however, are less familiar with the transurethral operation because of its recent development in the field of prostatic surgery, and for that reason, it is my purpose to discuss with you at this time, the rôle of transurethral resection in the management of prostatism.

Transurethral operations for relieving urinary retention are not at all new, in fact, this method of approach was the earliest to be employed for the relief of prostatic obstruction.

Prostatism was first recognized as a disease entity at the beginning of the nineteenth century; and until open prostatectomy was developed in the Listerian era, all surgical approaches to the relief of the disease were made via the urethral route—an approach previously employed successfully for the division of stricture and removal of the stone. In this era there were many expert lithotomists and surgeons adept at internal urethrotomy, and skillful performers in the technique of stone crushing by the use of the lithotrite. As these surgeons came to recognize the newly discovered disease of prostatism, and learned to differentiate it from vesical calculus and

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urethral stricture, it was natural that they should improvise upon accepted and familiar techniques in dealing with bladder neck obstruction instead of applying new and revolutionary procedures for its management. Surgical versatility was made possible only after the development of asepsis and anaesthesia.

In 1806 Sir William Blizard performed the first recorded transurethral operation for prostatism "by dividing the prostate by a double gorget, cutting on both sides, introduced in the usual way by a staff into the bladder". This operation was an adaptation of perineal lithotomy. It did not meet with popular reception nor was it performed by other surgeons of his day.

The second improvisation on a familiar technique for the relief of prostatic obstruction (in this instance internal urethrotomy) was that employed by Stafford and reported by him in the *Edinburgh Medical and Surgical Journal* in 1831. Guthrie used a similar type of instrument for incising inflammatory contracture of the bladder outlet, a lesion first described by him in 1834—and called median bar by him—a term that has remained in use for over a century.

A third improvisation upon a familiar technique of operation (in this instance the use of stone crushing instruments—the lithotrite) was that employed by the French contemporaries of Stafford and Guthrie. Mercier, and others, sharpened the narrow blade of the lithotrite for the purpose of incising the obstructive lesion. But the operation designed in France did not prove successful. The abandonment of all these techniques was doubtless due to the fact that the obstructive lesion was not removed, only incised; and there was doubtless a high operative morbidity due to hæmorrhage.

Bottini, in 1877, announced the development of his galvanic cautery incisor which was a modification of the lithotrite-like instruments of the French School but it was fitted with a dull platinum blade instead of the sharp steel blade of its predecessor; and the blade of the Bottini instrument was connected to the source of electrical energy with insulated wires. The galvano-cautery instrument was designed to produce tissue destruction followed by sloughing and eventual elimination of the obstructive lesion. The great disadvantage of the instrument was that it forced the surgeon to operate

blindly. In 1900, Freudenberg attempted to obviate this difficulty by attaching a lens system to the instrument; but the imperfections of this device caused him to discard it after he had employed it for only a short time. Other adaptations and modifications of the Bottini instrument were made by such surgeons as Goldschmidt in Germany and Wishard and Chetwood in the United States.

All of these instruments were unsatisfactory. They were not equipped with proper facilities for hæmostasis and did not permit the excision of prostatic tissue; and at best the results obtained from their use were relatively poor and very few of the patients upon whom they were employed obtained lasting relief of symptoms.

At the turn of the last century urologists on this continent and in Europe came to regard the existing techniques of transurethral prostatotomy, either as useless or as too dangerous; and thus the transurethral approach to the relief of prostatism again fell into disuse. The discard of these procedures was abetted by the rapidly developing technique of open prostatectomy which was achieving such brilliant results as to render obsolete the less accurate and less satisfactory transurethral methods. Another quarter of a century was destined to pass before the modern resectoscope was created. During the first quarter of the twentieth century open prostatectomy continued to develop and its advantages as well as its limitations were thoroughly evaluated. Although suprapubic and perineal prostatectomy were employed with increasing skill and remarkable success, genito-urinary surgeons continued to search for some procedure which was less formidable and which would offer the prostatic sufferer a safer and more comfortable means of obtaining relief from his disability.

The modern resectoscope owes its existence to three fundamental discoveries: the incandescent lamp, the high frequency current, and the fenestrated sheath. The incandescent lamp was invented by Edison in 1879 and was first employed successfully for examining the urinary bladder in the cystoscope designed by Nitze and Leiter in 1887.

The discovery of high frequency current and its application to surgery constituted a second development essential to the evolution of the resectoscope. In 1888 Hertz produced oscillat-

ing currents of very high frequency, and d'Arsonval, in 1890, discovered that such currents of greater than 10,000 oscillations per second could be passed through the body without causing any sensation other than heat—an observation which led to the therapeutic application of the high frequency current in the treatment of arthritis, and muscular and nervous diseases. Joseph Rivière, a Parisian physician, while employing the d'Arsonval high frequency diathermy current therapeutically, touched the point of one of the electrodes accidentally, and was startled to discover that a spark jumped from the electrode to the point of contact on his skin. Although the sparking effect caused a moderate amount of discomfort, it did not produce a severe burn. He decided to utilize this phenomenon therapeutically in an effort to stimulate the healing of an indolent ulcer which he had been unsuccessfully treating and the ulcer promptly healed when it was subjected to the stimulus of the d'Arsonval spark. Thus surgical diathermy came into being. The first application of high frequency current to urology was made by Edwin Beer, who, in 1910, described the technique of applying this current through a cystoscope for the destruction of bladder tumours. The development of this technique marked one of the greatest advances in the history of urology—for it paved the way for subsequent electro-resection methods by proving that high frequency current could be employed effectively under water. But the development of high frequency currents that were capable of cutting as well as coagulating under water were not developed until 1931.

The third discovery essential to the evolution of modern transurethral prostatectomy was the principle of the fenestrated tube. In devising his punch instrument in 1909, Dr. Hugh H. Young created the first transurethral instrument purposefully designed for the excision of obstructing tissue at the bladder neck. By engaging the obstructing bar within the fenestra, Young sheared it off by means of a tubular knife which fitted snugly into the sheath of the instrument. The principle of the fenestrated tube revolutionized the development of equipment used for the relief of prostatic obstruction. All instruments which had previously been employed in this operation were improvisations, and were used for pur-

poses ulterior to the original intent of their designers and satisfactory excision of tissue was not possible with any of them.

The Young punch did not allow the surgeon to inspect the operating field while cutting and forced him to perform the operating blindly; and it did not provide a means for controlling hæmorrhage. The instruments later developed by Braasch, Caulk, and others, attempted unsatisfactorily to overcome these deficiencies in the Young punch. In 1926 Bumpus modified the Braasch direct vision cystoscope by placing in the shaft a fenestra, and using a tubular knife. Bleeding was controlled by the application of high frequency coagulating current through a flexible electrode. To Bumpus, therefore, should go the credit for designing the first completely unified instrument for use in transurethral prostatectomy. He took advantage of the three inventions which, when incorporated into one instrument, made successful transurethral prostatectomy possible: the incandescent lamp, the high frequency current, and the fenestrated tube.

Another significant development of the same year (1926) was the appearance of Maximillian Stern's instrument in which a lens system was used to provide vision of the operating field. In this instrument the fenestrated sheath was employed, but the tubular knife was displaced by a tungsten loop by which prostatic tissue was excised with high frequency cutting current. The Stern resectoscope (he named it) was the immediate forerunner of our present instruments, but it was not a satisfactory instrument—and the high frequency currents that were available at the time of its appearance were inadequate for cutting under water. McCarthy improved the Stern resectoscope by using a bakelite sheath and by moving the fenestra from its traditional site to the end of the tube. This permitted the superior advantages of endoscopic vision which were afforded by the McCarthy foroblique lens system, and the development of efficient high frequency cutting currents coincided with that of the McCarthy instrument. Truly the resectoscope of today is a product of modern inventive genius. With this device the surgeon is able to excise tissue rapidly and with a minimum of tissue destruction; he is able, at all times, to orient himself perfectly within the field of operation and, aided by the magnifying lens system, employed in modern instruments,

is able to identify more accurately than with the unaided eye, all structures within the field of operation. Bleeding is under complete control at all times—and by employing instruments that can be operated completely with one hand, the surgeon is able to use his free hand for rectal palpation—thus providing him with tactile as well as visual guidance during operation. The skilful resectionist is able to remove all of the diseased prostate by a careful and meticulous operative technique and he obtains a low morbidity and mortality, and end results that compare most favourably with those obtained by surgeons who are expert in the performance of open prostatectomy. From the viewpoint of the patient the chief advantages of transurethral prostatectomy are concerned with the safety of operation, the comfort that he enjoys during hospitalization, and the short duration of incapacity that results from his operation, as well as the excellence of his end result. Proof that the patient realizes these advantages in a large measure is to be found in the increasing numbers of patients who, having conferred with friends already operated upon by this method, not only readily submit themselves to it, but request transurethral resection in preference to open surgery. But there are disadvantages to the operation and these very properly should be enumerated and discussed. However a free appraisal of the disadvantages of transurethral resection discloses that the majority of them are concerned with the skill or lack of skill with which the technique of operation is performed. The complications of operation that are most often reported are: hæmorrhage, rupture of the bladder or prostatic urethra by cutting too deeply in vulnerable areas or in areas that should not be incised at all, and urinary incontinence. Control of bleeding during resection can be adequately handled in all instances by the employment of a systematic technique of operation so that operative hæmorrhage is rarely excessive and suprapubic cystotomy, performed for the purpose of arresting hæmorrhage should never be necessary. Likewise the resectionist, if he is skilful, does not use the cutting current except when he is perfectly oriented and should therefore have no difficulty in recognizing vulnerable structures and avoiding injury of them with the resectoscope. During the past 12 years over 4,000 transurethral resection operations have

been performed at the University of Michigan Hospital and in that series of cases rupture of the bladder has never occurred, nor has the rectum been injured with the resectoscope. Four patients have had extravasations of urine as a result of perforation of the prostatic capsule and three patients have had postoperative incontinence of urine. In consideration of the fact that nearly half of the cases were operated upon by various members of the resident staff, which has changed every year, it is at once evident that the complications under discussion can be all but prevented when careful and meticulous technique of resection is employed.

There are several postoperative complications whose occurrence can prevent a satisfactory end result. Inadequate resection is the commonest source of poor results following resection. In the early days of this operation many surgeons who performed it believe that it was necessary to remove only an amount of tissue sufficient to relieve obstruction. We now know that the incomplete and partial removal of the adenomatous structure often is followed by sloughing of the remainder with the result that the inadequately resected patient often has persisting cloudy and infected urine, recurrent spotting of blood or even gross hæmaturia, and dysuria. These disagreeable sequelæ do not occur when adequate and complete excision of the adenomatous mass has been accomplished.

Another source of postoperative difficulty is traumatic stricture of the urethra. This occurs most commonly at the urinary meatus and results from the employment of instruments that are large in calibre and are not easily accommodated by all urethras. Strictures can usually be prevented if the surgeon is careful not to injure the urethra while introducing the resectoscope, and if he performs meatotomy in all cases where the meatus fails to accommodate the instrument adequately.

The opinion has been expressed that the incidence of recurrent obstruction following transurethral resection is significantly higher than that which follows open prostatectomy and consequently is an objectionable feature of resection. We know that recurrent hypertrophy of the prostate gland can occur following any type of conservative operation and all experienced urologists have seen recurrent enlargement following both perineal and supra-

pubic enucleations. For only the total extirpation of the prostate along with its anatomical capsule can provide certain prophylaxis against recurrent enlargement. The present writer once had the experience of performing transurethral prostatic resection on an ancient and venerable gentleman who had twice previously submitted himself to prostatic surgery. Hugh H. Young had performed perineal prostatectomy upon him 20 odd years before, and Hugh Cabot had enucleated his gland 12 years later by suprapubic operation. This, and other similar experiences indicate clearly that recurrence of prostatic hypertrophy can occur following any type of conservative prostatectomy, and it stands to reason that the incidence of recurrent hypertrophy occurring following transurethral resection will be affected considerably by the thoroughness with which the adenomatous mass is removed with the resectoscope. In the earlier days of resection recurrent hypertrophy occurred more often than today when the skilled resectionist approximates a total removal of the gland.

It appears evident that the transurethral operation itself has many inherent advantages over perineal or suprapubic prostatectomy in those instances where resection can be performed with skilful technique and under ideal conditions; and the essential disadvantages in the operation appear to be concerned with the imperfections of its performance. And the measure of success that has been attained in many clinics that have striven conscientiously and laboriously to attain the requisite skill in the technique of resection would seem to justify the effort that has been expended in those centres. For the technique of transurethral prostatectomy is not one that can be acquired by casual or occasional performance; it is a difficult procedure the mastery of which is attained only with long and painstaking apprenticeship in its execution. Nor can skill in the management of open prostatectomy be applied with automatic and corresponding effectiveness to the transurethral operation. But the technical difficulties of prostatic resection should in no way condemn the operation. The demands imposed by complex techniques in the fine arts and the sciences have not interfered with the ascetic or the scientific attitude; nor have they precluded the training of skilled performers in these fields. There is no reason

why the obstacle of complexity should be considered particularly insurmountable in prostatic surgery, and the skill with which the well trained resident in urology is able to perform transurethral prostatectomy should dissipate any fears which may be held for the future of this operation.

A detailed technical description of transurethral prostatectomy does not fall within the scope of the present discussion, but a brief account of the essential operative manœuvres might serve to acquaint those who are unfamiliar with the procedure with a basic concept of its objectives.

The adenomatous mass is removed by a series of encircling manœuvres that are designed to cut off sizeable glandular masses from their peripheral blood supply which emerges from the prostatic capsule. By these manœuvres of encirclement the surgeon is able to isolate the major portion of the gland with great facility and accuracy, and the fragmentation and excision of the avascularized masses is then accomplished with a maximum degree of safety and a minimum blood loss. When the prostate gland is removed in this manner, the surgeon is able to excise large amounts of tissue in a relatively short period of time because the basic manœuvres of operation—the manœuvres of encirclement—are essentially the same, whether the gland be large or small; and the fragmentation and removal of isolated and avascularized tissue masses comprises the least time consuming part of the procedure.

In most cases the manœuvres in question are carried out in three zones: the intravesical zone consists of the tissue that projects upward into the bladder and is comprised of the median lobe, if enlarged, and the lateral lobes if they have enlarged in such a way as to project into the bladder. The second zone of operation is composed of the adenomatous mass that lies within the prostatic fossa. The final zone of operation consists of that which is occupied by the apex mass of tissue. The resection of tissue in all of these zones of operation is greatly facilitated by three dimensional perception that is afforded by the digital rectal palpation and manipulation of the gland while the operation is in progress.

The indications for transurethral resection in general are essentially the same as the indications for open prostatectomy. Ordinarily, the

diagnosis of prostatism is easily made. In some cases, however, the history as well as the physical findings may be completely misleading. In difficult and deceiving cases, diagnosis can be established only after the most comprehensive examinations have been carried out. The most important symptom of prostatism is urinary obstruction which may vary in degree from one which causes complete retention to one which is so mild that the patient is unaware of the presence of obstruction. It is not unusual to find evidence of obstruction in patients who are completely unaware of any change in the size or force of the urinary stream. In such cases, the change occurs so insidiously that it escapes detection; and the altered function may be recognized subjectively only after a removal of the obstructive lesion has permitted normal micturition. We have seen many patients who were carrying large amounts of residual urine, and whose bladders were grossly trabeculated, but who insisted that they had no difficulty in voiding. These patients were surprised and delighted to discover, after their obstructive lesions had been removed, that their post-operative ease of voiding demonstrated clearly a preoperative difficulty of which they had been unaware. Circumstances of this sort indicate that the patient's history may prove to be unreliable even though it has been honestly given.

Associated symptoms which may lead eventually to a diagnosis of prostatism are increased frequency of urination, nocturia, recurrent bleeding, or recurrent urinary tract infection. Either of the latter two symptoms may be the only subjective indications of vesical outlet obstructions which are producing advanced pathological changes within the bladder and the upper urinary tract. In so-called silent prostatism, the only symptoms may be weakness, ease of fatigue, diurnal somnolence, loss of appetite, and constipation. All experienced urologists are familiar with the old gentlemen who, in spite of a chronically overdistended bladder which necessitates the unbuttoning of the top trouser button, complains only of wetting the bed at night.

The diagnosis of prostatism is easily made in patients whose histories show difficulty in voiding, slowing of the urinary stream, increased frequency of urination both day and night and, who, through rectal examination,

are found to possess an obvious enlargement of the prostate gland. The surgeon has little difficulty in advising such patients as to whether or not surgical treatment is indicated.

In cases where less conclusive subjective findings are presented, or in cases in which the physical diagnosis fails to demonstrate clearly a causative lesion, complete urological studies must be made before diagnosis can be established. Certain outstanding findings are significant in evaluating such cases. The presence and amount, or the absence of residual urine is of first importance in the diagnosis. It is generally recognized that residual urine constitutes a prime indication of vesical neck obstruction. High degrees of vesical neck obstruction can exist without residual urine, however, provided the bladder muscle is in a state of compensation for the demands imposed by the obstruction. In such instances, physiological obstruction resulting from prostatic disease may be as great as in situations which produce large amounts of residual urine or even complete retention.

When residual urine is lacking there are three chief criteria upon which the diagnosis of prostatism may be established; first, abnormality in the urinary stream as observed by the physician; second, the presence of a hypertonic bladder as determined by cystometry; and third, gross trabeculation of the bladder as demonstrated by cystoscopic examination. These signs—along with the cystoscopic identification of a lesion capable of producing obstruction of the vesical outlet—constitute objective evidence upon which a diagnosis of prostatism can be made, even in cases where residual urine is not present.

Recurrent urinary tract infection often constitutes the only subjective finding in prostatism. In such cases, the surgeon can establish the diagnosis only by carrying out a complete urinary tract examination, including the cystoscopic study. We have seen a number of patients of prostatic age who exhibited only one symptom of prostatism—recurrent infection. These patients presented no symptoms suggestive of obstruction, and no residual urine; and, in some cases, no prostatic enlargement was palpable by rectal examination, while in others, enlargements which could be identified in this manner were present. Complete urological examination of these patients, in-

cluding cystoscopic study, revealed trabeculation of the bladder, characteristic obstructing tissue in the prostatic urethra, and no important disease elsewhere in the urinary tract that might account for the recurrent infection. A diagnosis of prostatism was made in each of these cases because of two objective findings: a lesion of the prostate capable of producing obstruction, and gross trabeculation of the bladder evincing physiological obstruction. In such cases prostatectomy is to be recommended since procrastination in this type of prostatism as well as in other types invariably leads to pathological changes of increasing severity in the bladder and in the upper urinary tract.

In patients whose only symptom is bleeding, the differential diagnosis is sometimes more difficult to make, since bleeding suggests the possibility of the presence of urinary tract malignancy. If the bleeding is initial or terminal, however; if the patient has passed blood clots without renal colic (which is suggestive of upper tract bleeding); if the cystoscopic examination discloses an intravesical or intra-urethral enlargement of the prostate gland capable of producing obstruction as well as bleeding; and if the bladder shows trabeculation, with or without residual urine, the diagnosis of prostatism can be made and the surgeon can advise the patient to undergo prostatectomy, provided pyelograms have ruled out renal neoplasm.

Patients who are found to have benign enlargements of the prostate gland, producing irritative symptoms but no physiological obstruction, can be treated by conservative measures such as the application of heat and occasional massage. Heat may be applied by diathermy, rectal irrigation or sitz bath. Of the three, the latter is the least expensive, is most easily administered, and is probably as effective as either diathermy or rectal irrigation. Irritation caused by prostatic enlargement can often be greatly relieved by hyoscyamus compound, oil of sandalwood, or other so-called analgesics taken by mouth. If the irritative symptoms deriving from benign enlargement become intolerable and cannot be alleviated by measures short of surgery, prostatectomy is indicated.

The selection of a particular operation for the treatment of prostatism is quite obviously subject to individual judgment. Each surgeon

inevitably establishes his own criteria in the matter of selection and is governed in his choice by his experience and by his ability to perform the various operations that are available to him. Surgeons generally agree that vesical neck contractures are most effectively treated by transurethral resection. And, most urologists agree that obstructions from infiltrating cancer are most advantageously relieved by resection. (The time does not permit a discussion of endocrine management of prostatic malignancy in the present paper.)

With these avenues of approach to the modern surgeon, the selection of operation for the treatment of benign hypertrophy is as much a matter of controversy today as it was a quarter of a century ago, when the perinealists and the advocates of suprapubic prostatectomy were arguing the merits and the disadvantages inherent in the operations which were then available. The disagreement among surgeons regarding this operation does not concern the possibility of utilizing transurethral resection in the treatment of prostatic hypertrophy; it is related, rather, to the question of distinguishing cases which are best handled by resection or by methods of enucleation.

Some individuals feel that only median lobe hypertrophies should be treated by resection; while others believe that small lateral lobe hypertrophies may also be so treated. It does not appear to the essayist that the resection operation can logically be defended for treatment of small hypertrophies and at the same time condemned for treatment of large prostatic hypertrophies—yet exactly that attitude has been expressed by many eminent urologists. It is difficult to understand how the operation can be considered to be fundamentally sound in the one situation and unsound in the other. A question of definition immediately arises: what actually constitutes the distinction between the large and the small prostatic hypertrophy?

It has often been held that transurethral resection is not indicated for the treatment of large prostates because the extensive denuded surface produced by this operation delays healing and results in prolonged urinary sepsis and disability. Experience does not support this opinion. It has been well established that the excellence of postoperative results following resection depends not upon the size of the

prostate but rather upon the relative completeness with which abnormal tissue is removed. Failure to remove tissue which has been deprived of its blood supply results in suppuration and delayed healing in glands of any size. Moreover, the rate of healing which follows an adequate resection operation is not determined by the extent of the denuded area; for healing is accomplished not only by the extension of epithelial growth from the bladder and the membranous urethra, but also by epithelial extension from the innumerable prostatic ducts and acini exposed in the fossa, acting as islands for epithelial regeneration. The cuboidal epithelium of these structures undergoes squamous metaplasia and rapidly covers the entire denuded area. It is evident that contraindication for prostatic resection in cases where hypertrophy is present should be determined by the ability of the surgeon to perform an adequate prostatectomy in any given situation rather than by the size of the gland itself.

It is my belief that all hypertrophies of the prostate gland, except those of excessive size, can be adequately treated by transurethral resection. In cases where transurethral prostatectomy cannot be completed in one hour, we prefer to perform enucleation rather than to carry out multiple stage resections, on the assumption that the risk involved in a series of two or three prolonged resections is at least as great as the risk inherent in a one-stage perineal or a two-stage suprapubic prostatectomy.

At the present time approximately 90% of the cases who are operated upon for non-malignant prostatic obstruction in the University of Michigan Hospital are treated by resection while the remaining 10% are submitted to open prostatectomy; and perineal or suprapubic operations performed in about equal numbers, are chosen depending upon the indications in each case. The patients who are operated upon by transurethral resection enjoy a remarkable freedom from postoperative morbidity. Pain is rarely suffered after operation—in fact, when severe discomfort does occur during the first 24 hours following resection, the surgeon must suspect that a complication has arisen and should take immediate measures to discover and treat it. Less than 10% of cases require any postoperative narcotics. Sepsis is likewise an unusual feature of the post resec-

tion convalescence—and we have found that less than 5% of our cases have fever of 102° or over at any time following operation. Patients are out of bed on the first postoperative day and on the third day, the catheter is removed, and for the remainder of the convalescent period the patient enjoys the freedom of walking about the wards, and urinates normally and comfortably without the necessity of dressings or draining wounds that are an inherent accompaniment of open prostatectomy. Patients who reside in the immediate vicinity of the hospital are allowed to go home on the fifth to eighth postoperative day—while those who live at a distance are discharged on the tenth to the twelfth day. When the patient leaves the hospital he is advised to remain inactive for two weeks at home but is allowed to resume the normal activities of life at the end of that period of time. One month after discharge from the hospital he returns for a checkup examination. At that time the patient should report that the urinary function is essentially normal except for nocturia of one to three times, without dysuria, and the urine should be grossly clear, or slightly hazy with leukocytes. Occasionally the patient may complain of frequency or dysuria at the time of the checkup visit. Usually, such cases are found to display evidences of persisting urinary infection that can be cleared up promptly by administration of chemotherapeutic agents.

Modern transurethral prostatectomy may be said to demonstrate its important place in urological surgery in many ways. To recapitulate: the advantages enjoyed by the patient during the postoperative convalescent period are freedom from discomfort and sepsis; freedom from draining wounds; re-establishment of comfortable and continent urinary function on the third postoperative day; freedom of activity within the hospital and its environs during the entire convalescent period; discharge from the hospital within two weeks after the day of operation. Except for rare instances, these advantages are enjoyed by all patients who are submitted to transurethral prostatic resection. They are almost entirely unknown to patients who undergo open operation.

Today every urologist has at his disposal the technical means of performing all types of prostatectomy, and most urologists perform resection in all cases where its successful per-

formance can be assured. Thus the selection of this operation will be limited almost exclusively by the technical limitations of the surgeon. By improvements of individual technique the urologist will be able to make the outstanding advantages of transurethral resection available to an increasing proportion of prostatic sufferers. Such a humanitarian objective should comprise a not unworthy challenge to modern Æsculapians.

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OSTEOGENIC SARCOMA DEVELOPING ON PAGET'S DISEASE*

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CASE REPORT

The patient was a man of 59, a painter.

He enjoyed good health until April 15, 1943, when he was working on a truck and was thrown from the back end to the front landing forcibly on his right shoulder. His arm was sore and he was unable to do overhead work. He used liniment on his shoulder but did not consult his physician and carried on with his work.

On July 7 he was working under a sink and he straightened up injuring his right shoulder again. He continued to work for ten days longer but his shoulder was gradually getting worse, so much so, that he could not raise his arm overhead. On July 13, three months after the original injury, he consulted his physician for the first time. His right shoulder was x-rayed and the films showed definite Paget's disease of the head of the humerus, and calcification which appeared to be in the soft tissues unattached to the humerus and scapula and was thought to be a myositis ossificans traumatica because of the history of old injury. Twelve daily treatments with physiotherapy were given but there was no relief noted.

On August 6 he noticed that both ankles were swollen and that slight exertion caused dyspnoea and fatigue. He was re-admitted to hospital. On examination at this time he presented the picture of congestive heart failure. His neck veins were dilated, pulse 68 and blood pressure 150/80. The heart was found to be enlarged with a diastolic apical thrill and auscultation revealed a mid-diastolic murmur. A few râles were found at the right lung base. A palpable liver edge and peripheral pitting oedema completed the picture. The electrocardiogram was normal. The clinical impression was chronic rheumatic heart disease with cardiac hypertrophy and congestive heart failure. He was adequately digitalized and put on schemn-neutral acid ash diet. The shoulder remained very sore throughout his hospital stay and he obtained relief only by the injection of opiates.

On August 26 his right arm began to swell considerably and he was advised to return to hospital for further investigation. This he did on September 2.

At this time examination showed a man who ap-

peared to be in his late forties rather than his late fifties. He was in considerable pain and was supporting his right arm. The swelling began on the dorsum of his hand extending up to the lower one-third of the arm. Measurements at this time showed the right wrist to be $2\frac{1}{4}$ inches more in circumference than the left. His right forearm 3 inches below the elbow measured $16\frac{1}{4}$ inches in circumference as compared with $9\frac{3}{4}$ inches on the left side. There was definite pitting oedema. Patient complained bitterly of pain over his acromion which radiated medially and over the scapula. He was very tender over the point of maximal pain, which was the acromion.

Three large, hard masses were palpable, one in the axilla between the anterior and posterior folds extending well up into the apex and measuring approximately $2\frac{1}{2}$ inches transversely and three inches vertically; the second nodule, felt behind the medial third of the clavicle was stony hard, fixed and about the size of a golf ball. The third nodule was felt behind the junction of the middle and lateral thirds of the clavicle as a stony hard, fixed mass and the impression gained was that this was malignancy. The mass in the axilla and at the inner end of the clavicle could have been glandular masses but the one behind the outer part of the clavicle was well away from the usual glandular sites.

X-rays of both arms, both shoulders, skull, spine and pelvis at this time revealed extensive Paget's disease involving both right arms and forearms, more marked on the right side, also the pelvis and the skull. The unusual finding was that of three large, oval and round calcified masses one in the region of the inferior angle of the scapula, one above the superior border and one above the medial angle practically behind the proximal end of the clavicle. In earlier films these masses appeared to be definitely separated from the scapula but in later ones they were in closer proximity. The calcification grew from the periphery of the tumour toward its base. At this stage it seemed that we were dealing definitely with an osteogenic sarcoma of the scapula developing on Paget's disease of the bone. The question was whether these masses of calcification were in the glands.

The patient died on November 10 and a post mortem was refused but with the assistance of the undertaker a good sized wedge of tumour was removed from the hard mass in the axilla. The pathologist confirmed the diagnosis of osteogenic sarcoma but stated that the glands were pressed to one side and that this was not a secondary in the gland. The masses, therefore, were simply out-growths of tumour from the scapula. His report was as follows:

The tumour mass appears to be growing round and into a lymph node. The microscopical picture is one of great variation. Three types of tumour cells are seen. The predominating type is a small spindle cell with hyperchromatic nuclei. In some areas considerable numbers of large polyhedral cells occur. Mitotic figures are frequently seen in these cells. Occasionally giant cells are seen. In between the cells is a homogeneous intercellular material in which calcium has been deposited. The blood vessels are not numerous and are very thin-walled.

A side light on the situation was the reaction of the Workmen's Compensation Board to the case. They finally agreed to accept this as a result of accident and arranged compensation accordingly.

*Read at the Seventy-fifth Annual Meeting of the Canadian Medical Association, Section of Radiology, Toronto, Ontario, May 24, 1944.

LABORATORY FINDINGS

Urinalysis on two occasions, September 3 and October 8, 1943, negative.

Serum calcium.—September 13, 7.6 mgm. %; September 15, 8 mgm. %; October 5, 9 mgm. %.

Serum phosphorus.—September 13, 4 mgm.%; September 15, 4.7 mgm. %.

Non-protein nitrogen.—October 5, 28 mgm. %.

Serum phosphatase, King and Armstrong units upper limit of normal, 13.1 September 13, 298 Units; September 15, 257 Units.

BLOOD CHEMISTRY

Gutman *et al.* have produced some interesting conclusions on blood chemistry.

In hyperparathyroidism when hypercalcaemia (10+ mgm. %), hypophosphataemia (5- mgm. %) and increased blood phosphatase activity co-exist, the case is an uncomplicated classic one. The exception is the occasional case of carcinoma with advanced skeletal metastases in which the hypercalcaemia is related presumably to neoplastic destruction of the bone, the hypophosphataemia probably to cachexia and the increased blood phosphatase to involvement of the bone or liver. Difficulties in interpretation in about one-fifth of the cases of hyperparathyroidism are due to the absence of elevation of the calcium content of the serum, about 12 mgm. per 100 c.c.

In Paget's disease, in spite of the extensive skeletal changes which may take place, the content of calcium and inorganic phosphorus of the serum remains within normal limits. In this respect Paget's disease and hyperparathyroidism differ widely. The finding of hypercalcaemia in a case of what was ostensibly Paget's disease should lead to a review of the evidence, as it is possible for hyperparathyroidism to present roentgenological features usually ascribed to Paget's disease.² The degree of elevation of blood phosphatase activity differs widely for different patients with osteitis deformans. Kay³ has suggested that a rough relation exists between the extensiveness of the involvement of the bone and the level of phosphatase activity. In some cases Gutman states that unexpectedly high serum phosphatase levels in comparison with the extent of involvement of the bones as revealed by roentgenograms were noted. Subsequent roentgenographic and clinical studies, however, suggested an unusually rapid development of the disease. The determination of serum phosphatase may prove to be of value in prognosis. Extensive involvement of the skull is almost invariably associated with relatively high values. The writer agrees, however, with

Kay that the increased blood phosphatase activity in osteitis deformans is not specific and is probably the result rather than the cause of the disease.

In metastatic carcinoma of the bone extensive osteolytic metastases may be associated with a hypercalcaemia, suggesting hyperparathyroidism or multiple myeloma, while the diffuse osteoplastic metastases in the bones are associated with increased serum phosphatase and may, therefore, be confused with the findings in Paget's disease.

With regard to the physiological significance of increased blood phosphatase activity, the fundamental work of Robison⁴ and his associates led him to suggest that it is the result of an increase in specific cellular activities leading to formation of bone. This would account for the high values of blood phosphatase in Paget's disease and in osteoplastic types of metastases in the bones. In rickets the proliferation of cartilage cells is a fertile source. The increased blood phosphatase activity in hyperparathyroidism in which dissolution of bone is the most striking feature would appear at first sight to be inconsistent with the conception that blood phosphatase is related to formation of the bone. Histological studies, however, revealed extensive repair of bone concomitant with destruction and the increase in blood phosphatase may be the result of such formation of new bone. In multiple myeloma, *e.g.*, in which proliferative reaction of the bone is virtually absent, the increase in serum phosphatase activity is slight or absent despite extensive involvement of the bone.

In six cases of osteogenic sarcoma the serum phosphatase activity was essentially normal. Bodansky found a variation in five cases of from 3 to 16.6 Bodansky units. Two cases of Ewing's tumour showed no increase.

ASSOCIATION BETWEEN PAGET'S DISEASE AND SARCOMA

This subject is by no means new, as Paget himself in his original article in 1877 stated that in three of his eight cases there was associated malignancy. Many writers have stated that malignant change occurs in 7% of cases of Paget's disease of the bone. There is, however, considerable variation in this percentage among different writers. Brailsford reported 6 cases of malignancy in a total of 154 which is about

4%. In 1941 Nichols of the Cleveland Clinic reviewed 48 cases of Paget's disease in which no sarcoma was found. In his series 18 cases were aged 50 to 60, eighteen 60 to 70 and four over 70.

After studying the files of the Bone Tumour Registry, Codman stated: "Apparently bone sarcoma does not arise in the unhealthy after 50 except in cases of Paget's disease. With the exception of cases who also have Paget's disease, twelve in number, we have no instance of osteogenic sarcoma in a patient over 50."

Five years later in 1931 Coley and Sharp in an article in *The Archives of Surgery* stated that they had made a study of the incidence of osteogenic sarcoma in Paget's disease. They showed only four instances of sarcoma below the age of 50 in which Paget's disease was the predisposing factor. Above the age of 50, however, the two diseases are more commonly associated and between 65 and 70 years of age, six out of seven cases of osteogenic sarcoma showed Paget's disease. The sarcoma in these cases always develops in bones which are affected by the Paget's disease.

Of 71 cases of osteogenic sarcoma in patients over 50 years of age (20 from Memorial Hospital and 51 from Bone Sarcoma Registry) Paget's disease was found to be a predisposing factor to the sarcoma in 28% of cases. This is at variance with Codman's statement.

Of the patients with the two diseases associated, men are affected five times more frequently than women. As to the frequency of Paget's disease itself, Schmorl, who discovered 138 cases in 4,600 autopsies, concluded that in persons over 40 years of age its incidence is 3%.

Paget himself was the first to observe the association between osteitis deformans and malignancy. All writers agree that it is not simply a coincidence that the two are associated but that Paget's disease is the predisposing factor to sarcoma.

Von Albertini in 1928 described in minute detail the development of sarcoma in a case of Paget's disease. In his case the sarcoma was in the femur. Photomicrographs showed the histological appearance of the osteitis deformans, pre-sarcomatous changes in certain areas and in other places actual sarcoma.

SITES OF PREDILECTION

In patients over 50 years of age approximately 60% of osteogenic sarcomas of the tibia, humerus and ilium and 100% of cases of osteogenic sarcoma of the skull occurred on the basis of a pre-existing Paget's disease.

Coley and Sharp state that when Paget's disease is present, in no instance is sarcoma found to affect a portion of the skeleton free from roentgenographic evidence of Paget's disease. The bones affected commonly are femur, humerus, tibia, ilium and skull.

HISTOLOGY

Many pathologists note the difference between uncomplicated osteogenic sarcoma and osteogenic sarcoma developing on Paget's disease. Some have suggested that this tumour should have a separate classification in the bone registry. Particular mention is often made of the numerous giant cells, many of which are mononuclear and hyperchromatic. The presence of these cells does not mean that the condition is benign.

TREATMENT

This is apparently no more satisfactory than it was in 1931 when Coley and Sharp wrote their article. Even at that time they suggested heavy preoperative irradiation. Now McNattin of Chicago advises also heavy irradiation in osteogenic sarcoma previous to amputation, but none of the cases on which he reports had associated Paget's disease. The sarcoma associated with Paget's disease is apparently no more radiosensitive than the usual type and it has been noted that the span of life from the onset of the sarcoma to death is shorter with associated Paget's disease than in uncomplicated cases.

CONCLUSIONS

1. A case of sarcoma complicating Paget's disease is presented.
2. The close association between Paget's disease and sarcoma is discussed and it seems apparent that Paget's disease predisposes to sarcoma.
3. The blood chemistry is discussed with the rôle it plays in diagnosis between hyperparathyroidism, Paget's disease and secondary malignancy.
4. The treatment of this disease by irradiation, surgery or both is ineffective.

I wish to thank Dr. W. D. Hay for the preparation of the slides and Dr. M. J. Morison for his permission to publish his case.

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CLASSIFICATION OF NON-TUBERCULOUS CHEST DISEASES WITH SPECIAL REFERENCE TO SO-CALLED ATYPICAL PNEUMONIA

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PART I.—PRINCIPLES

ACUTE and chronic respiratory disease all conform to certain basic underlying principles. These principles are, in turn, dependent on the structure of the respiratory tree. Understanding and therefore classification is not possible, unless these principles are recognized.

Recently, with the greater use of chest radiology in Army practice, we have been startled to find how frequently lung shadows develop in mild respiratory diseases. These shadows, from whatever cause, have been labelled atypical pneumonia. The introduction of this term and its satellites as meaning a disease entity, has obscured these basic principles. We fail, not only to understand each other, but more important, our patient.

This so-called atypical pneumonia is most often not an entity but is composed of a group of diseases. Whatever type it is, each will conform to these same principles. These principles are: (1) repeated exposure; (2) vulnerability; (3) irreversibility of damage; (4) continuity; (5) allergy; (6) barriers.

In conformity with these principles, lung diseases are classified as follows:

Acute Lung Diseases:

1. Lobar pneumonia.
2. Pneumococcal pneumonia—atypical (or abortive).
3. Broncho-pneumonia:
 - (a) Respiratory allergy.
 - (b) Respiratory damage.
 - (c) Lung damage.

4. Virus pneumonia:
 - (a) Possible.
 - (b) Proved.

Chronic Lung Diseases:

1. Respiratory allergy or hypersensitivity:
 - (a) Upper—Vasomotor rhinitis or perennial hay-fever, nasal polyposis.
 - (b) Lower—Vasomotor or allergic bronchitis and asthmatic bronchitis.
2. Respiratory damage:
 - (a) Upper sinusitis, recurrent or chronic.
 - (b) Lower bronchitis, recurrent or chronic.
3. Lung damage:
 - (a) Silent.
 - (b) Lung damage—bronchitis.
 - (c) Bronchiectasis.

This classification is described in detail in Part Two. In the section immediately following, the principles are outlined in detail.

REPEATED EXPOSURE

Respiratory disease is universal, repeated and epidemic. None of us escape it. This cannot be said of any other disease. We have, at least, two to three attacks of "flu" or colds every year. This would amount to, on an average, 200 in a lifetime.

This repeated exposure, by the laws of chance, in a certain percentage will eventually lead to complications. These complications are due to secondary infection and its accompanying irreversible damage (3rd principle). Therefore, it is well said, "The common cold derives its importance from its complications".¹

Exposure explains the localization of the acute episodes. It is greatest at the nose, much less in the bronchi and least in the lungs. Acute rhinitis, is, therefore, most common, acute bronchitis much less and acute pneumonitis (*i.e.*, any lung inflammation) relatively very uncommon.

VULNERABILITY

This is due to four apparent structural faults.

(a) *Drainage is against gravity.*—The adoption of the upright position has put the drains in both sinuses and bronchial tree at the wrong end. More than that, as we lie in bed on our backs even the direction is wrong. The animal walks on all four feet and the drainage of the bronchi is dorsally at diaphragmatic level to ventrally at mouth level. It would never, as we do, lie asleep with its feet in the air and its natural bronchial drainage, therefore, non-existent. Our drains should logically be at the floor at the antrum and at the costo-vertebral angle in the back. As it is, the sinuses and basal bronchial structures tend to become cess-

pools. The importance of posture in the production, localization and treatment of respiratory disease cannot be over-estimated. Poor drainage easily, therefore, is produced and poor drainage means stasis, stasis infection.

(b) *Response of the wall of the respiratory tree.*—Stimuli may produce swelling and secretion and sometimes contraction. This tends, still further, to add to stasis. It may progress to complete obstruction.

(c) *Dependence on the Ciliated Membrane.*—Since in the lower bronchial tubes and sinuses, the effect of gravity is lost, we are left dependent on this one structure. Fortunately, this is ordinarily very effective and very vital. If, however, secondary infection occurs this lining will be the first to go and no natural effective drainage is left.

One natural and important reflex may still be present, namely the cough. If that too is lost, as in the case of the sinuses, or in the lower bronchial tubes during sleep, no drainage whatever will take place. Stasis again occurs and still further infection follows.

(d) *The walls of the sinuses are rigid.*—Here, just as in injury or inflammation of the skull, contents, a further insult may be added namely compression. This is bound to occur when the sinuses are inflamed and the opening closed by inflammatory swelling.

Vulnerability is greatest at the sinuses since all four factors are present plus the lack of cough. It is next greatest at the lower bronchial tubes. These factors of vulnerability greatly out-weigh those of exposure so that, while exposure explains localization of acute episodes, vulnerability explains localization of damage, infection and chronicity.

The commonest chronic respiratory disease is, therefore, sinusitis and the next commonest bronchitis of the lower bronchial tree.

IRREVERSIBILITY OF DAMAGE

A. RESPIRATORY TRACT

Damage in these vulnerable areas may be so severe that nature cannot restore the *status quo*. This damage will occur primarily, of course, to the ciliated membrane and remains for a lifetime. It has still further increased vulnerability. A smaller virus infection or less exposure will initiate an attack in this area. Each attack will become more prolonged. Non-patho-

genic bacteria (e.g., *S. viridans*) or a mild virus infection may be able to attack this weakened structure. Secondary, as well as virus infection, may occur still further extending the damage, and producing chronicity. Virus infections are short and sharp. Secondary infection carries on the process.

Prolongation or frequency of acute respiratory diseases indicates irreversible damage. Chronicity means damage and infection. There are therefore three possible stages in the life history of respiratory disease.

Stage 1, normal.—Acute colds or "flu" occur one to three times a year. The damage is slight and reversible. Attacks are short, seasonal or epidemic, and are upper respiratory. They vary according to the type of epidemic.

Stage 2, of recurrences.—Irreversible damage has occurred and remains between the attacks. These are recurrent, prolonged. Although they take on the character of the epidemic at first, later the damaged area will be lit up and symptoms thus will have a continuity in each attack (*vide* 4th principle).

They are seasonal and epidemic, but tend to be also sporadic. Eventual localization will be in the vulnerable areas, the sinuses and bronchial tubes. Extension may occur to the lung. (Broncho-pneumonia, sinusitis, or broncho-pneumonia bronchitis.)

Stage 3, of chronicity.—Both irreversible damage and infection remain between the attacks. Symptoms are chronic with exacerbation occurring seasonally, during epidemics and sporadically. Localization occurs as with stage 2. A similar spread to the lung as a broncho-pneumonia is more likely to occur during exacerbations.

B. LUNG PARENCHYMA

This irreversible damage may occur not only to the respiratory tree, as described above, but if the invasion is severe enough or the lung already damaged, (principle 6) it may occur primarily in the lung. In this event the respiratory tract as distinct from the lung parenchyma is previous to the attack, undamaged.

Thus, it may follow a lobar pneumonia or with a pneumonia following measles, whooping cough or postoperative atelectasis. Healing especially with the first may appear to be complete clinically or by x-ray yet damage may have been left.

Here the sequence might be, lobar pneumonia; a long clear period; lobar pneumonia again and in the same area a shorter clear period; an atypical lobar pneumonia; a following cough without signs for another period; a broncho-pneumonia in same area; a following cough with signs; a further broncho-pneumonia, followed by localized moist sound (bronchiolitis) for a few weeks; cough with increased signs of bronchitis; broncho-pneumonia; chronic bronchitis; and now probably evidence of bronchiectasis in that area. Any stage may be missed or the process stop or become dormant for years or for a lifetime.

CONTINUITY

There are four types of continuity.

(a) *Continuity of type*.—This will follow from the presence of irreversible damage. Each cold or flu may light up the same damaged area. If the sinuses or ear have been damaged, each attack will settle there and an otitis or sinusitis result.

(b) *Continuity in time*.—This will follow from the presence of damage and infection. To give an example, a "cold" light up a damaged sinus, as above, but after it is over nasal discharge remains continuously.

(c) *Continuity of structure*.—If the respiratory tract has been rendered more vulnerable by damage, the infection may spread between or during an attack. Between the attack, the spread is by gravity. Thus a sinusitis produces a bronchitis. During the attack it may spread by direct continuity or via bronchial tubes.

(d) *Continuity is familial*.—This is explained in the next section. If the son has hay fever or chronic rhinitis, look for asthma in the family. Respiratory disease should never therefore be regarded as isolated in time, type or structure. If a patient has a bronchitis, think of sinusitis; if he has pneumonia, think of previous bronchitis; if he has asthma, look for a past history of pneumonia or to the family history for allergy.

ALLERGY AND RESPIRATORY HYPERSENSITIVITY

Allergy will cause hypersecretion, swelling of the mucosa, and hypermotility. This latter is shown by broncho-spasm. All effects still further increase the danger from stasis, obstruction and infection.

There are two types.

(a) *Primary (autonomic)*.—Primary respiratory allergy or hypersensitivity is generally, although not always, inherited. Sometimes even the sensitivity to a specific antigen may be inherited. More often, it is just a general hyper-sensitivity of the respiratory structure, which is inherited. This general respiratory hypersensitivity has no satisfactory terminology. In the upper respiratory tract it is called vasomotor rhinitis, in the lower, it is not as well known. I refer to it later as allergic bronchitis. Probably a better term would be vasomotor bronchitis. Its symptoms and signs are classified later on under the heading, Respiratory Allergy. These should always be looked for if the immediate family history shows asthma, hay fever, chronic cough or sinusitis. This hypersensitivity is a great disadvantage in dealing with ordinary colds or "flu". The sinuses and the bronchial tubes are both more liable to block, this block as already mentioned, means stasis and infection. In the bronchioles both emphysema and atelectasis are also more liable to result. Thus, allergy may lead to infection and both may eventually result in a lung inflammation. This inflammation again has been called atypical pneumonia, but is better classified as broncho-pneumonia, respiratory allergy.

Secondly, inherited structural faults. One is on weaker ground here. The number of cases of otitis, recurrent pneumonia, sinusitis and bronchitis which occur in one family cannot be explained however, wholly by the frequency of respiratory disease or inherited allergy.

(b) *Secondary (infectious)*.—Allergy may develop in any patient who has received or developed gross, irreversible damage; as for example, chronic sinusitis, or lung damage.

Both primary and secondary forms of allergy are manifested by swelling of mucous membrane and by contraction of plain muscle. Thus the nose blocks and the chest wheezes. Acquired allergy which is a response to bacterial infection adds a third type of tissue response, a humoral reaction. In this way, it may resemble tuberculosis and syphilis. It is quite possible that many cases of broncho-pneumonia are influenced or even caused by this altered tissue reaction. Loeffler's syndrome is such an example. This syndrome may be briefly described as a transitory pneumonic infiltration preceded by evidence of allergy and

accompanied by an eosinophilia. A broncho-pneumonia group described under the name "Chronic pulmonary catarrh in children"² probably belongs to this group also. Here there is persistent or recurrent asthmatic bronchitis with recurring areas of pneumonitis.

It will be seen that allergy and infection are partners who will always seek each other and having met are inseparable and grow strong together.

BARRIERS

Healthy lungs are not attacked by moderate infections unless barriers above are damaged or their response altered by allergy. Lung tissue is the vital heart of the respiratory tree. In itself, it is delicate and defenceless. All other respiratory structures above it have as their main function, its protection. Only after their defences have been broken down will the lung be attacked. Therefore, unless the infection is severe, lung inflammation must have been preceded by damage of the respiratory structure in former attacks. If the respiratory tree, prior to this invasion, is healthy and whole, it almost certainly will handle a mild infection and prevent it reaching the lung. It will follow from this, too, that the greater the former damage the less severe need the present attack be for lung tissue to be affected.

A severe infection, on the other hand may attack the lung primarily. For example, healthy respiratory defences may be overwhelmed because of the savage attack of the pneumococcus via lymphatics. Even in this instance previous pneumonia with resultant damage and infection has occurred in many cases. Similarly a severe virus infection may by-pass all the previously healthy barriers or overwhelm them after a brief fight (an initial coryza or pharyngitis) and appear as a true virus pneumonia. These cases are rare.

The lung may be damaged or rendered inefficient in dealing with infection, by other agencies. These agencies are, for example, postoperative atelectasis, emphysema, passive congestion, senility, rigidity and deformities of thorax, new growth and injury. In these cases again, a moderate infection may attack the lung. It will follow therefore, that: (a) If lungs are damaged, a moderate infection can affect them. (b) A moderate infection of the lungs pre-supposes damage of barrier above.

Since the barriers most often affected are the sinuses and bronchial tubes, this pneumonitis would be classified as broncho-pneumonia sinusitis or broncho-pneumonia bronchitis. (c) If allergy is present, a moderate infection can cause a pneumonitis.* This pneumonitis is classified as broncho-pneumonia respiratory allergy. (d) A severe infection may be primary in lung (*e.g.*, lobar pneumonia).

SUMMARY

There are six principles which underlie all non-tubercular respiratory diseases. They are:

1. Repeated exposure of the respiratory tree.
2. Vulnerability, which may be inherited and is due to structural faults, or may be acquired and is then due to No. 3.
3. Irreversibility of damage. This will follow in a certain number of cases from the repeated exposure. This irreversibility explains prolongation, recurrences and chronicity and leads to:
4. Continuity, first in the type of attack, second in the structure attacked. There are two other types, the one being the spread of disease by continuity of structure (a sinusitis to a bronchitis) and the other a familial continuity. This is due to the inheritance of the next factor of:
5. Allergy. This allergy may be also acquired and is then due to chronic infection.
6. Barriers. This is the most important. Healthy lung tissue will not be attacked by mild infections unless the barriers above have been irreversibly damaged in former attacks, or their response altered by allergy.

Applying these principles to the patient with so-called atypical pneumonia, one would get these results. The past history might reveal chronic or recurrent sinusitis, less likely chronic or recurrent bronchitis and least likely former lobar pneumonia (principles 1, 2 and 3). It might be a mixture of all three (principle 4). Both past and family history may reveal respiratory allergy (principle 5). Clinical or x-ray examination may confirm evidence of damage to the barriers, sinuses or bronchial tubes, or of former damage to the lungs (principle 6).

Lastly, if the infection has been severe, it may be primary. It may attack a lung which

* The author is using the term pneumonitis as meaning any lung inflammation.

is not only healthy, but reach this lung through a previously healthy respiratory tract. This will be a true lobar pneumonia or primary virus pneumonia (principle 6).

The vitally important points in diagnosis and management are, first, to assume that all lung inflammations are secondary until proved otherwise, and second, to assume that damage may have followed, until proved otherwise. Chest inflammation is rarely isolated in time or structure.

Application of these principles also shows why so many so-called atypical pneumonias do not respond or only partially respond to the sulfa drugs. The effect of previous damage or allergy cannot be controlled by these drugs.

The importance and frequency of respiratory allergy or hypersensitivity in preceding lung inflammations is emphasized.

PART II.—CLASSIFICATION

A. Acute Lung Diseases

1. Lobar pneumonia.
2. Atypical pneumococcal pneumonia (abortive pneumonia).
3. Broncho-pneumonia. (a) Respiratory allergy. (b) Respiratory damage, *i.e.*, sinusitis or bronchitis. (c) Lung damage. Other and well-recognized causes of broncho-pneumonia may be added, *e.g.*: postoperative atelectasis, new growth, senility, foreign bodies, cardiac stasis, infectious diseases. These are not included in this discussion.
4. Virus pneumonia. (a) Possible. (b) Proved.

Groups 2, 3, 4 and 5 have all been termed atypical pneumonia.

Group 1 needs no explanation. It is getting more rare and tends to become Group 2, atypical lobar pneumonia. Lobar pneumonia, like scarlet fever and measles, has become increasingly milder (*i.e.*, atypical) in the past decade. The decreased mortality of pneumonia is due as much to this factor as the advent of the sulfa drugs. This decline started in 1925 which is well before the advent of sulfa therapy.

Many of the so-called atypical pneumonias belong to this group and are unrecognized because of the transient nature of the temperature, lung shadow, pain and rise in white cell count. Even the pneumococcus may only be present briefly and so is not discovered. There

are three possible causes for the atypical nature of this pneumococcal pneumonia. The pneumococcus may be of low virulence, it may be attacking a very healthy young man, or the attack is made on an area of lung damaged by a previous attack. In the latter case it merges into Group 3c.*

GROUP 3.—BRONCHO-PNEUMONIA

The following discussion is limited to those broncho-pneumonias in which the primary factors—respiratory allergy, respiratory damage and lung damage, (a, b and c) have not been recognized. It is this group to which most of the so-called atypical pneumonias belong. The recognition of this group is very important since it always indicates previous damage and/or infection or allergy (principle of barriers). "The term Broncho-pneumonia is a convenient one since it is familiar and established and always associated in one's mind with some primary cause" (Warner³). It is used in this clinical sense rather than as a pathological entity. "Pneumonitis" is not satisfactory in nomenclature since it means inflammation of the lung of any and every type.

The pneumonia itself is but an episode. It is initiated by bacterial or virus invasion, fatigue or exposure, but the episode is but a part of the whole past and future history of the patient. It is neither a beginning nor an end. This concept more closely approximates that of other chronic diseases with an acute exacerbation, as for example, syphilis and rheumatism. It may explain the difficulty in the bacteriology. The bacteriology of most chronic diseases is difficult. It is hard to find spirochæta in a gumma or significant bacteria in an acute episode of a chronic sinus or ear. The factors of tissue damage, immunity and allergy have long ago entered the picture so that tissue response may be far more due to those factors than the original bacteria.

The failure to recognize this group shows the strength and weakness of army medical practice. The pneumonic shadow is recognized because of our ability to give more frequent x-ray examinations to our sick members. It is regarded as an isolated entity (so-called atypical pneumonia) largely because of our isolated

* The classification given above was mainly suggested in consultation by Brigadier W. Warner and Col. J. D. Adamson.³

contact with our patient. He presents himself neither before or after, and so we tend to regard his disease without foreground or background. The family doctor is unlikely to make this mistake since he sees his patient in his life setting. He remembers "Bill had a weak chest" as a small kiddy and now at 14 years, when he has a bad chest cold, he will connect the two. He, however, does not recognize that this severe chest cold is producing a broncho-pneumonia.

It is more important to recognize the principle of continuity and to realize that the intervals between acute episodes may be prolonged yet these episodes are part of the same process. An asthmatic bronchitis starts during childhood and may be followed by a long free interval yet with a recurrence of bronchitis as an adult. A pneumonia may be followed by ten years of freedom, then recurrences possibly at shorter and shorter intervals. A similar course may be observed with otitis, tonsillitis and sinusitis. Subsequent attacks tend to become less severe but more prolonged; they are initiated more easily; symptoms gradually level out but are more constant; the bacteriology becomes less and less important and the factors of damage, allergy and immunity, more and more dominant.

It is equally important to neglect no clues and to search for clues. Respiratory disease is so common that minor symptoms are neglected both by the patient and the doctor. A cigarette cough may indicate a minor allergic response or hypersensitivity of the mucous membrane. A productive morning cough may be the only remaining symptoms of lung damage. A slight wheeziness or tightness of the chest may indicate respiratory allergy and so on. It is not suggested that these symptoms are disabling or that they necessarily indicate that future trouble is to be expected. They are important, however, in giving leads. Isolated they may mean nothing, but as part of the whole picture they may be very significant. There is a cause for every symptom. It is not normal to have a stuffy nose, to cough on smoking a cigarette, to have a constant post-nasal discharge, to have more than three colds a year, or repeated attacks of "flu" colds lasting over two or three weeks, to cough or get short of breath on exertion. If these small clues are neglected then, the primary disease is

not even found and the pneumonia may go on repeating itself with increasing damage. Following the clue of the stuffy nose leads us to a parent who has asthma and thus to the criminal allergy. The treatment, then, of this patient when he develops his broncho-pneumonia is of the underlying allergy. Again, following the clue of post-nasal discharge, may lead to the evidence that each attack is preceded by a right-sided headache. This man has a chronic or recurring sinusitis and the treatment and the cause is of this condition, not of the pneumonia. It is easy enough to diagnose the primary cause of these broncho-pneumonias in the latter stage where symptoms and signs are obvious, but at this stage the damage is far gone and treatment less and less effective. These clues are treated, so often, with complete contempt; and while this is a very good way to treat some diseases, it is this same attitude which is responsible for the conception that atypical pneumonia is a new and primary disease. No murder is solved by neglecting clues, and no murder is ever primary.

It is stated⁴ that first, there is a parallelism in the curves of atypical pneumonia and upper respiratory disease, and secondly that, "The distribution of atypical pneumonia is so random as of itself to suggest that the pneumonic process is not the primary disease". If it is admitted that many of so-called atypical pneumonias belong to this group of broncho-pneumonias, both facts are explained. Former damage or allergy represent the basic disease. The fact that these same patients are more liable to get lung involvement during epidemics of respiratory disease explains both the parallelism and the random distribution.

It is possible in many cases to recognize three stages in this disease.

(a) Invasion, if by virus with brief fever and common cold. Exposure or fatigue may be sufficient to light up a dormant infection, in which case this stage may be absent.

(b) Premonitory stage corresponding to the lighting-up of the damaged area. Symptoms during this stage may point to this area, *e.g.*, a prolonged head-cold in sinus damage, a chest cold in respiratory or lung damage. This state may last for a few days to weeks. In these first two stages, the patient is ambulatory.

(c) Lung invasion: This is ushered in by chills and fever. Inflammation of other parts

of the respiratory tract may be without fever. These could be regarded, like a dermatitis, as an inflamed outer coat. Once the lung is reached, however, the process is inside the defences, and the whole organism is affected and responds to the danger with fever.

It is conceivable that, if the extension to lung substance is slow and insidious or, if the attacks are made chiefly on area already protected by fibrosis (lung damage group) or if tissue response is chiefly allergic, that only a slight fever may result. This latter afebrile type of case is picked up on routine chest x-rays and labelled atypical or virus pneumonia and even at times, especially if in upper lobes, as tuberculosis.

The bacteriology of these broncho-pneumonias is regarded as secondary in importance. It is possible, as already outlined, that they are initiated by virus and in that sense are virus pneumonias. Of prime importance, however, are these factors of damage and allergy. It will be seen that this classification is clinical rather than bacteriological.

GROUP 4.—(a) VIRUS PNEUMONIA POSSIBLE

Transient lung densities may follow simple cases of "flu" without any previous respiratory history and without the presence of pathogenic bacteria. In most cases virus studies are impracticable and the possibility of their virus origin is deducted only by the negative bacteriology.

Since many of these virus pneumonias are mild and no previous damage can be found they appear to negative the principle of barriers. There are two possible explanations of this. With increasing care and skill in taking the history and in examining, always remembering the principles of continuity and barriers, this group will become smaller and smaller. In the author's series of 100 consecutive cases of pneumonitis, they amount to 12% only. It is impossible that the remaining 12% have had some episode which had caused damage and which had been forgotten. The atypical lobar pneumonia is such an episode. On the other hand they may represent a pure virus disease which would then introduce a new principle namely that mild virus infection can affect the lung tissue directly. This would have to be added as a corollary to the principle of barriers.

It is known that virus invasion paralyzes the cilia. If that is so, lung invasion, atelectasis or obstruction might readily occur. Further research is necessary to settle this point.

In the author's series (to follow) all 12% were mild with complete and rapid recovery indicating that the primary damage, if present, was mild.

There is no clash with the outlined principles where the possible virus pneumonia is severe, since in the principle of "barriers" it is stated that severe infections can invade the lung primarily.

GROUP 4.—(b) VIRUS PNEUMONIA PROVED

This group is small at present. It includes those cases proved by serological studies or with strong presumptive evidence.

B. CLASSIFICATION OF SUBACUTE AND CHRONIC RESPIRATORY DISEASE

Since these diseases must precede the most important group of so-called atypical pneumonias, namely the broncho-pneumonias, their understanding and classification is essential. Only a bare outline of their symptomatology can be attempted. The three main groups have already been deduced from the first outline of principles. They are respiratory allergy, respiratory damage and lung damage. The term respiratory is used to include every part of the respiratory tract except the lung parenchyma.

They are grouped as follows:

1. Respiratory allergy and hypersensitivity. (a) Upper—vasomotor rhinitis or perennial hayfever, nasal polyposis. (b) Lower—vasomotor or allergic bronchitis and asthmatic bronchitis.
2. Respiratory damage. (a) Upper—sinusitis, recurrent or chronic. (b) Lower—bronchitis, recurrent or chronic.
3. Lung damage. (a) Silent. (b) Lung damage bronchitis. (c) Bronchiectasis.

GROUP 1.—RESPIRATORY ALLERGY AND RESPIRATORY HYPERSENSITIVITY

Inherited, lifelong symptoms with possible periods of freedom. The allergic response in the upper respiratory tract is chiefly by swelling and in the lower, by swelling and bronchospasm. In both, this response is initiated by changes of temperature and humidity, contact with dust and smoke, emotion, exertion and fatigue. Symptoms tend to be relieved in the summer and are much influenced by climate. One may feel well on the prairies and con-

tinually ill in Ontario. Disability is minor, or of short duration, being directly related only to these irritants. Our patient does not give a history of hospitalization or bed rest, since infection is not present. Symptoms and physical signs are also absent, except after these irritants. Too much attention has been given to specific antigens. By far the largest group under this heading have only the non-specific response outlined above. Too much emphasis has also been laid on frank asthmatic attacks, allergic response or hypersensitivity is present years before these occur. The patient may never progress that far and yet have a definite disability in handling infection. The family history is nearly always positive even when limited to the immediate members. One should not limit oneself, however, to asking for frank asthma and hay fever alone. Familial allergy is often not recognized as such by patient or doctor. It is at least a possible and likely bet, if more than one member has a long history of chronic cough, stuffy nose, sinusitis or bronchitis.

It may be further subdivided into upper and lower types:

(a) *Upper*.—Vasomotor rhinitis, perennial hay fever, nasal polyposis. The symptoms according to part affected are: Eye: watery or red eye. Nose: blocking and fullness. Pharynx: dryness, soreness, repeated sore throats, irritation, sometimes sufficient to cause a constant dry cough. All these symptoms are initiated by the above factors.

Here the sequence is, (a) upper respiratory allergy for many years, possible intervals of complete freedom according to season or location. (b) A severe cold with sinus headache. (c) Symptoms now become continuous even without exciting factors. Another common cold with, now, a frank sinusitis which remains chronic. (d) Gradual addition of bronchitis. (e) Or even omitting the bronchitis, the next attack may show a broncho-pneumonia.

(b) *Lower*.—Allergic or vasomotor bronchitis, asthmatic bronchitis. Choked-up feeling, retro-sternal pain or burning, dry cough. These symptoms arise chiefly on exertion, but they are also produced by any of the above factors. In addition one should look for: choked-up feeling on awakening, relieved later by coughing up mucus, lateral chest pain, (fibrositis), frequent head and chest colds when infection is added.

These symptoms are often mistaken for effort syndrome, but it should be noted that the dyspnoea is of the allergic type, *i.e.*, it is associated with and caused by a tightness and sense of constriction, and is not a simple shortness of breath. Moreover, it is often associated with exertion cough and is worse with the other above factors which do not affect effort syndrome, *e.g.*, dust and weather. The effort pain is parasternal and not præcordial. It is probably due to a real anoxæmia and resembles that of silicosis. It is not a primary nervous origin. Although in both autonomic instability may be present.

Allergic or vasomotor bronchitis is best applied to this group and asthmatic bronchitis only when frank asthmatic attacks have started. Neither term is satisfactory, since inflammation is not always present. This objection similarly applies to vasomotor rhinitis. Since infection is not present this group is the least disabling. One often meets veterans from the last war diagnosed and pensioned for chronic bronchitis who come into this group and whose symptoms and signs have not progressed at all.

It is not incompatible with old age and an active life. The hazard in dealing with infection is there, however. The order of events often is: simple respiratory allergy for many years, a heavy common cold with wheezy bronchitis, incomplete recovery with some following increase in allergic symptoms for another period of years, recurrent attacks of acute bronchitis and finally an attack with broncho-pneumonia, respiratory allergy.

GROUP 2.—RESPIRATORY DAMAGE

(a) *Upper*.—*Recurrent sinusitis*: Symptoms are not lifelong but have a definite onset following a severe cold. They may be of many years' duration. Family history is negative for allergy. There are recurrent attacks of malaise, unilateral head pain (occipital, supra, intra- or retro-orbital or facial) and/or stuffy nose.

These acute attacks are often accompanied by sore throat and are mistaken for acute tonsillitis. They are distinguished by the lack of follicular exudate and sometimes of hæmolytic streptococci on culture. When cough is the main symptom they may be mistaken for an acute bronchitis; when more subacute they

may be mistaken for and accompanied by laryngitis since persistent hoarseness is often a feature. They are often the cause of a persisting high sedimentation rate, persisting streptococci on throat culture or of throat soreness following an acute upper respiratory infection. Again, the only clue given may be in a history of prolonged or frequent colds or of recurrent attacks of "flu". Most important, they may be, not only in the acute stage, but through a lifetime comparatively free from pain. Between attacks there may be few or no symptoms or signs yet, as with lobar pneumonia, the damage remains and it is this damage which is, after all, the cause of the recurrent sinusitis and of the possible following broncho-pneumonia. It may be recognized as a cause by the occurrence of the above symptoms as premonitory to the attack of pneumonia. During the attack it is often noticed that the sputum is copious and is far in excess of what could come from the small lesion revealed on the x-ray or from a possible accompanying bronchitis. Direct examination of the sinuses should be a routine in the examination of any respiratory episode acute or chronic. Only in this way, will the rôle of sinusitis be recognized. Recurrent or chronic sinusitis is the etiological factor most often missed in the so-called atypical pneumonias.

Chronic sinusitis.—Recurrent acute attacks occur as above. In addition, there are symptoms and signs between. The symptoms are post-nasal discharge, or feeling of stuff collecting in the nasopharynx, anterior nasal discharge, blocking of nose, especially if constantly unilateral, cough with sputum. This sputum is hawked up rather than coughed and on direct questioning the patient can generally tell that it comes from the head rather than from the chest. Signs are often present, swelling of the turbinates, presence of pus, densities in sinuses on x-ray or transillumination.

(b) *Lower.*—*Recurrent bronchitis:* Symptoms, recurrent attacks of cough and malaise, in bed two or three times a year with flu or bronchitis, prolonged colds or repeated attacks of flu, winter cough, frequent colds, colds occurring on the slightest provocation. There may be no symptoms and there are no chest signs between attacks. There is no family history of allergy and although allergic symp-

toms may be later added they are not prominent.

Chronic bronchitis.—As above, but now signs (rhonchi) and symptoms (cough and dyspnoea) have become constant. Sputum is coughed up.

Here again the sequence is recurrent or chronic bronchitis for years, a slightly more severe attack with rhonchi and with moist sounds persisting for weeks in one base but negative x-ray (bronchiolitis) a following similar attack with localized signs but this time an x-ray showing lung densities. It is worth noting that wheezy high pitched rhonchi suggest allergic origin and less prominent low pitched sticky rhonchi the respiratory damage bronchitis.

GROUP 3.—LUNG DAMAGE

There are three stages in this group:

(a) *Silent.*—There are no adventitious sounds in the chest, but a history of pneumonia, whooping cough, measles or operation is obtained. Following this, there may be a morning cough and sputum. There is a tendency for colds to become more frequent and to go to the chest. The patient may even localize the section of lung involved by a wheezy bubbly feeling in that part occurring during a cold. With each cold a mild chest or back pain may be noted and between attacks this same pain may be occasionally noticed on severe exertion. The significance of this pain which is probably pleural in origin is more often lost than any other symptom, particularly since it may not only be located in the chest, but referred to the back, abdomen or shoulder. This stage may be entirely symptomless and diagnosed only by history and x-ray evidence of diaphragmatic deformities, fibrosis, pleural densities or cardiac displacement.

(b) *Lung damage bronchitis.*—There has been now a further advance and constant signs of bronchitis, following the acute lung episode, are present. This bronchitis differs from that of the other two groups, not only in its onset and the possible x-ray evidence, but also in that the signs are often localized more to one base and accompanied by the mild episodes of localized aching or pain as given above. Sometimes just a single rhonchus may be its only sign. This rhonchus, however, is persistent and only in one area. Even if it clears on coughing, it will return very quickly and

always in the same place. Eventually as the process spreads (principle of continuity) the rhonchi will be found all over the chest.

The origin of pathology of this type of bronchitis is probably as follows. Bronchitis is always part of a pneumonia and in this case it is kept alive by the accompanying localized lung and bronchial fibrosis, distortion, gnarling, lack of drainage and destruction of ciliated membrane. It may eventually progress to the third stage of bronchiectasis. Macklin⁵ has called attention to the vital importance of bronchial elongation during inspiration. If this property is lost because of loss of elasticity and stiffening of the bronchial tree or surrounding lung, air entry will be poor and stasis more likely to occur.

(c) *Bronchiectasis*.—This is not always easy to diagnose. Symptomatology, signs, especially in young men, with a small focus, may be minor or absent. It is not always preceded by a remembered pneumonia. Some cases may be congenital. Any patient with so-called atypical pneumonia, giving a history of chronic cough or where the x-ray densities are long in clearing and with evidence of former x-ray damage even minor, should have a bronchogram.

It will be seen that there are three types of bronchitis (acute and chronic). They are: (1) allergic or vasomotor; (2) respiratory damage; and (3) lung damage. Each has a different etiology and prognosis.

SUMMARY

A classification of acute and chronic lung disease is given.

The respiratory tree is continuous and occurrence of severe or chronic inflammation in one part should always be a challenge to search for disease in another. This is especially to be emphasized in any form of lung inflammation.

Except then, in the case of severe infections, lung inflammations presupposes that the protecting barriers have been damaged (bronchitis or sinusitis) or that their response is inefficient (respiratory allergy) or that the lung itself has been damaged by former attacks. Since this damage or allergy is so common and so benign it has not been recognized and the so-called atypical pneumonia has been regarded as an entity instead of an episode dependent on the past and family history of the patient.

The importance of small clues and of family background is emphasized. Treatment of the

immediate pneumonic episode is unimportant as compared with treatment of the underlying cause.

In a survey to be published later, it will be shown that 80% of patients with pneumonias of all types, have a previous history of significant former respiratory disease. This compares with 33 1/3% of normal people who give a similar history of respiratory disease.

Some of these so-called atypical pneumonias are really unrecognized abortive pneumococcal pneumonias and still fewer are primary and virus in origin.

The term atypical pneumonia, unless qualified, would be better discarded.

In the diagnosis and treatment of the pneumonias we come back to the first principle of good medicine, namely the complete history. Complete as to the present, the past, and of one's inheritance.

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Case Report

SYMMETRICAL NODULAR LIPOMATOSIS*

By L. A. Sigurdson, M.D.

Winnipeg

Fatty tumours are so common that they do not usually arouse much interest, being benign, easily diagnosed, and readily treated when few in number. Curiosity is aroused when they occur in unusual numbers or when they are very large, as in the case reported here.

CASE REPORT

The patient is a man of a stocky, powerful build, French-Canadian, 63 years of age and 214 pounds in weight. He has always worked at heavy manual labour and is very strong, with well-developed muscles; intelligence normal. He presented himself for examination because of pain in a fatty mass on his left arm subsequent to an injury. On his arms, trunk and thighs are a very large number of fatty tumours (Figs. 1 and 2). They vary in size from a pea to an orange, the largest being on the left arm and the inner side of the left thigh. They are somewhat symmetrical, lobulated,

* From the Department of Anatomy, University of Manitoba, Winnipeg.

freely movable painless typical lipomas. The skin is freely movable over these masses. There is no pitting of the skin and no pain on pressure. He demonstrates these features by grasping the larger growth firmly and pulling them vigorously. The skin over the painful lipoma on the arm is darker in colour. There is no evidence of necrosis. Otherwise the physical examination is negative.

Personal history.—When he was 12 years of age he noticed a swelling on the medial side of the left wrist. This was soft, painless and not preceded by any known injury. It gradually increased in size but caused no disability. During the succeeding years other masses of a similar nature appeared on his arms, trunk and thighs. They did not interfere with his work, nor cause any symptoms. There is no history of alcoholism, syphilis, other illnesses, accidents or operations.

Family history.—There is no history of any similar condition in his family. He is married and has 6 children, all daughters, and these are normal in this respect.

Treatment.—The patient would not consent to the excision of the painful lipoma because he intends to join a circus after the war. In these cases of nodular lipomatosis removal is indicated for the relief of pain or for cosmetic reasons. Medical treatment is unsatisfactory, thyroid extract perhaps least so.

Etiology.—The current views are (a) that it is of neurogenic origin, (b) that it is caused by an endocrine disturbance. After reviewing the literature Foshee and Wilkes³ conclude that "the etiology of all forms of lipomata is still obscure".

Pathology.—In his excellent paper on Adiposis and Lipomatosis, Lyon¹ has given the following classification of the clinical varieties of abnormal distribution of fat: Group I. Adiposis dolorosa. Group II. Obesity. Group III. Nodular circumscribed lipomatosis. Group IV. Diffuse asymmetrical lipomatosis. Group V. Neuropathic oedema, pseudo-oedema, pseudolipoma and lipoma. Group VI. Adipositas cerebialis. This case is not one of adiposis dolorosa as originally described by Dercum,² but is nodular symmetrical circumscribed lipomatosis, belonging to Group III in Lyon's classification.

In all such cases in which the results of microscopic examination have been published, the growths consisted of lobulated, circumscribed masses of cellular fatty tissue.

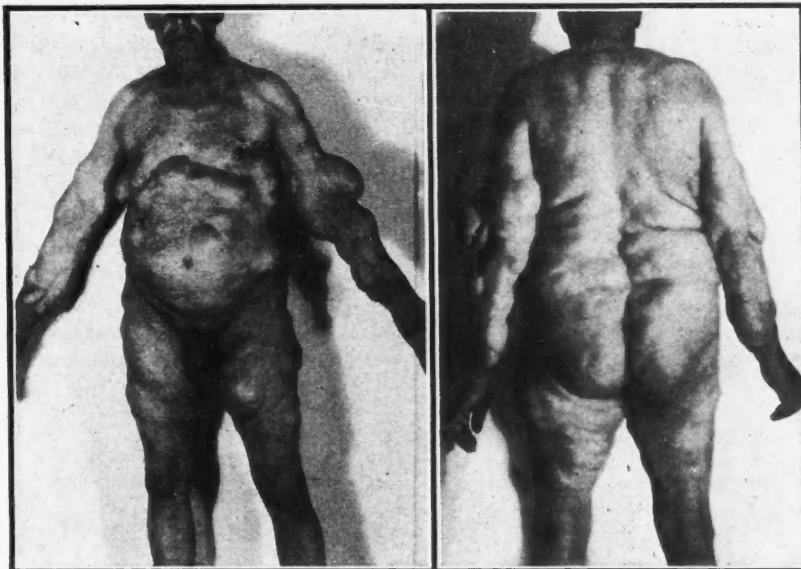


Fig. 1

Fig. 2

I take this opportunity of thanking Professor I. M. Thompson for his assistance in the preparation of this paper and Mr. Gordon Axtell of the Winnipeg General Hospital for taking the photographs.

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Special Article

THE 220th ANNIVERSARY OF THE ACADEMY OF SCIENCES OF THE U.S.S.R.

By Hans Selye, M.D., Ph.D., D.Sc., F.R.S.C.

Montreal

In 1725, on the initiative of the great 18th century scientist, Mikhail Lomonosov, and of several outstanding Russian chemists of that period, Peter the Great of Russia founded the institution which is now known as The Academy of Sciences of the U.S.S.R. In order to celebrate the 220th anniversary of this event, the Soviet Union arranged a jubilee meeting in Moscow and Leningrad to which the Academy of Sciences invited a number of delegates from foreign countries.

I have often been asked why the 220th anniversary was selected as one particularly worthy of celebration. There may have been fundamental reasons of which I am not aware, but it is certainly true that both our Russian colleagues and the foreign delegates were very pleased that the year selected for celebration was that during which the war in Europe came to an end. This Jubilee made it possible, for the first time after the European war, to hold

an international congress, and all foreign delegations felt that we owe a great debt to the Soviet Union for having made this convention possible. It is of special importance to note that so soon after the cessation of the greatest conflict in Soviet history, Russia considers science—and, at that, science based on close collaboration between investigators of various countries—of sufficient importance to justify the enormous expenditure of time, energy and funds which this meeting required.

It was my privilege to be selected as one of the three delegates representing this country at the Jubilee Meeting, acting as a delegate of the Royal Society of Canada. I feel that I learned a great deal during this trip, not only about the organization of science, but also about life in the Soviet Union in general. I had the advantage of being able to speak Russian—at least well enough to converse with people of all types—and of having seen the Soviet Union just ten years ago (at the occasion of the International Physiological Congress); hence, I could in a limited fashion compare pre-war and post-war bird's-eye views of conditions in the Soviet Union. I was most pleasantly surprised to see that in spite of the enormous destruction occasioned by the war, the general living standards of the Soviet people are, in many respects, better now than they were in 1935.

Our delegation consisted of Professor Harold A. Innis (Department of Political Economy, University of Toronto), Mr. A. E. Porsild (Department of Mining and Resources, Ottawa) and myself. We proceeded to Fairbanks, Alaska, on an R.C.A.F. plane. In Fairbanks we first came in contact with Soviet officials, who welcomed us on the military airport and informed us that a Soviet passenger plane was already waiting for us. We continued our voyage from Fairbanks across the Behring Strait through the entire width of Siberia in a most comfortably—and indeed one may say luxuriously—equipped Soviet plane which took us to Moscow. This gave us an opportunity to visit many of the Siberian cities at which our plane landed. It is not within the scope of this brief report to comment upon the rapid development of agriculture and industry throughout Siberia, especially since this subject has recently been dealt with in so many articles and books that it is probably sufficiently familiar to most readers of this *Journal*. Hence, I shall limit myself to a few remarks concerning the organization of science within the U.S.S.R. and particularly the structure of the Soviet Academy of Sciences. In this connection the following facts and figures are of interest.

The Academy of Sciences of the U.S.S.R., an association of the country's most eminent scientists engaged in co-ordinating scientific

endeavour on a country-wide scale, has under its jurisdiction a chain of institutions staffed and equipped to conduct research in the most diversified fields.

These institutions are grouped in eight sections: physics and mathematics, chemistry, geology and geography, biology, technical sciences, history and philosophy, economics and law, literature and language.

Also grouped according to these sections are the Academy's members and corresponding members. As of January 1, 1945, there were 142 members and 200 corresponding members. Supreme authority in the Academy is exercised by the General Meeting of members. Corresponding members attend and have a voice but no vote.

The General Meeting sets the line of research, decides fundamental organizational questions, and hears and discusses reports by institutions and members. It convenes from time to time, as occasion demands.

In the intervals between meetings, the highest body is the Presidium. The Presidium considers and approves research plans submitted by Academy institutions and hears their reports; decides organizational questions; draws up the budget (the Academy's revenue comes entirely from the State Budget of the U.S.S.R.; there are no membership dues), and effects contact between the Academy and all Government and public bodies.

The Presidium consists of the President of the Academy, three Vice-Presidents, and a secretary, who are elected by the General Meeting for a term of five years, as well as the secretaries of the sections and other Academy members, elected for a term of three years.

Once a year the Presidium reports on its activities to the General Meeting. Important Presidium decisions are submitted for approval at the next current General Meeting.

Election of members and corresponding members is held from time to time. Two months before election day an announcement is published in the newspaper *Izvestia*, the central Government organ. All scientific institutions, public organizations and individuals have the right to nominate candidates, who are discussed at meetings of the respective sections.

Members of the Academy are elected by the General Meeting from a list of nominees submitted by the sections. Candidates for honorary membership are nominated by the sections and also elected by the General Meeting. Corresponding members are elected by the sections, subject to approval by the General Meeting.

The Academy has under its jurisdiction 53 scientific institutes. On its staff are 4,213 research workers. There are also 16 independent laboratories, 35 scientific stations, 31 commissions and committees, 73 libraries and a

number of museums, gardens and observatories.

Before the Revolution the Academy had 47 members and 212 research and technical workers. There were 5 laboratories, 5 museums and 13 libraries.

During the past 13 years the Academy has established 11 branches (comprised of several scientific research institutes) and 3 bases (institutes engaged in research in several fields) in various republics of the union. Since 1941 the Georgian, Armenian, Uzbek and Azerbaijan branches have been reconstituted into independent Academies.

During the war the Academy opened 29 research institutions, among them institutes of natural history, history of art, the Russian language and forestry, 7 independent laboratories and 2 branches—the Kirghiz and the Western Siberian—as well as commissions on cosmic rays, high molecular compounds, etc.

In wartime the Stalin Prize, the country's highest award in science, was conferred on 32 members, 11 corresponding members, and 13 professors and senior research workers of the Academy.

The number of volumes in the Academy libraries has increased in Soviet times from 955,000 to 10,901,000. Of these, 5,500,000 are at the Central Library. The Academy publishes 44 journals, more than 30 of them established in the past quarter of a century. They include publications in English and French. The latest publications are the Transactions of the Kirghizian and Turkmenian branches, which started coming out in wartime.

During the past quarter of a century the Academy has fitted out more than 500 comprehensive expeditions to all parts of the country to study mineral and power resources, economics, ethnography, etc.

This year Academy institutions are arranging several dozen large expeditions that will cover the entire country from the Arctic to Central Asia and the Black Sea and from the Far East to Western Ukraine and Moldavia. Among them are 10 geological expeditions, which will break up into 35 parties, and 14 geographical expeditions.

More than two dozen expeditions have been organized to observe the solar eclipse of July 9.

More than 1,500 young men and women are doing postgraduate work at Academy institutions under the guidance of members, corresponding members and other prominent specialists.

These are the Academy's vital statistics.

The enormous emphasis laid upon research in the U.S.S.R. reminded me of a statement made a few years ago by Professor B. A. Houssay, one of the most eminent physiologists of our time. In a report concerning the national importance of research he states that investigation is the primary function of a uni-

versity since "knowledge must first be created before it can be transmitted to others" (B. A. Houssay, *La Investigacion Cientifica*, 1942). Robert Maynard Hutchins, the president of the University of Chicago, expressed a similar view when he made his, now famous, statement "a college teaches; a university both teaches and learns". Yet too many educators in the Western world (and our own country is no exception) are still so much under the influence of the primary necessities of the pioneer days, that they feel quite satisfied if the universities—the highest institutions of learning and culture—are adequately transmitting to students the knowledge acquired by others, that is, if they act as professional or trade schools, rather than as the cultural and scientific centres of the nation.

Admittedly it is often difficult to find professors who excel both in undergraduate teaching and in research. For this reason in some American universities separate teaching and research professorships have been established. In the U.S.S.R. the development of the Academy has largely solved this problem. The professors at the universities are primarily engaged for undergraduate teaching although they are given the opportunity to do research if they so desire. On the other hand, the academicians who are officially recognized as the top representatives of their respective sciences, have no undergraduate teaching obligations and are supplied with all the facilities necessary for extensive creative research work.

It is perhaps also worthwhile to say a few words about the interest displayed by the average Russian citizen in the scientists of his country. It is noteworthy that the three largest Soviet newspapers, namely *Pravda*, *Izvestia* and *Moscow News* devoted almost their entire front page, and the vast majority of their total space, to discussions concerning the jubilee meetings while these were in session. All the facts and figures which I gave above were discussed in great detail in these journals, which also gave extensive summaries of the reports read at our meetings. When we arrived in Leningrad we were not only welcomed by a number of official committees but the population itself was sufficiently interested in the meetings of the Academy to appear at the station in such enormous numbers that a police cordon was necessary to keep the square, in front of the station, free for us. There is hardly any other country where a purely scientific event could elicit such an enthusiastic spontaneous expression of interest from the population at large.

It is interesting in this connection that the members of the Soviet Academy of Sciences hold official government positions equivalent (as far as salary and social status are concerned) to those of cabinet ministers (or national commissars). Furthermore, in speaking to shop keepers, conductors on street cars, pilots of

Soviet planes, etc., I convinced myself that the names of the most important scientists and their major scientific contributions are quite generally known to citizens in all walks of life.

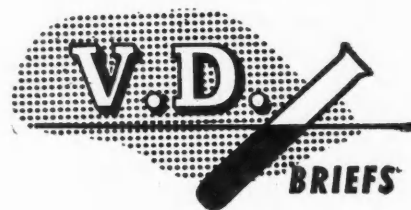
The progress made by Soviet physicians in the field of surgery has recently been reviewed in this *Journal* by Professor Wilder Penfield (*Canad. M. A. J.*, 49: 455, 1943) and hence I need not comment upon this subject here. Suffice it to say that important discoveries have also been made especially in neurophysiology and biochemistry. I am unfortunately not competent to judge progress in fields other than medicine, but I understand from conversations with delegates of the United States, Great Britain, France, etc.,* that perhaps the greatest contributions of Soviet Science were made in the fields of botany, soil science, organic and physical chemistry, as well as mathematics.

Finally, I should like to say that the jubilee meetings gave us an opportunity to see that the proverbial Russian hospitality is still as excellent as it always was. In spite of shortages occa-

sioned by the war, we were regally entertained throughout our trip, not only as far as hotel accommodations, caviar and Russian champagne were concerned, but also by a number of first-rate theatre, opera and ballet performances specially organized for the Academy. Finally there was a reception for the delegates at the Kremlin at which Generalissimo J. Stalin presided and most of the prominent members of the government (including Molotov, Kalinin, etc.) were present.

The 220 Jubilee Meeting of the Soviet Academy of Sciences certainly succeeded in showing to the world that so soon after the conclusion of their victorious war in Europe, the Russians are ready to reorient their energies towards the arts of peace.

Venereal Disease Campaign



Standard 18-Month Treatment of Syphilis

The standard treatment of early acquired syphilis consists of *at least forty* injections of a trivalent arsenical and *at least forty* injections of a bismuth preparation, given over a period of eighteen months.

The *most important* requirement of this treatment is that it be *continuous*. The patient must receive at least one injection every week. He should never be allowed to go more than ten days without treatment, especially during the first six months.

Epidemiology

Every case of venereal disease has acquired his or her infection from another case. Moreover, every case may have transmitted his or her infection to others before coming to the physician for treatment. The patient is the only person who has information about these contacts to his or her infection. It is the responsibility of the physician to tactfully obtain this information so that it may be transmitted to the provincial health department for confidential epidemiological investigation.

Treatment of Non-specific Urethritis in the Male

Experience shows that the majority of cases of urethritis in men are caused by the gonococcus, even though this organism cannot be readily demonstrated at the first examination of the

* Delegations were sent by a very large number of foreign countries, among others by Great Britain [N. K. Adams (Chemistry, Southampton), E. D. Adrian (Physiology, Cambridge), E. N. de Andrade (Physics), Max Born (Physics), V. G. Childe (Archeology), E. M. Grother (Soil Science), F. G. Dunnann (Chemistry), W. N. Edwards (Botany), C. N. Hinshelwood (Chemistry), Julian S. Huxley (Biology), Sir Harold Spencer Jones (Astronomer Royal), W. G. Ogg (Soil Science), Lord Radnor (Forestry), Sir Robert Robinson (Chemistry), H. Thomas (Librarian to the British Museum), D. M. S. Watson (Zoology), Muir (Soil Science), Sir Thomas Holland (Geologist and former president of the Royal Society of England), Professor Wooster (Crystallography), A. Sorsby (Medicine), E. H. Pawney (History), Joseph Needham (British Council Science Office, Chungking, China, Embryologist)]; the United States of America [J. E. Church (Meteorologist, Nevada Agricultural Experiment Station, Reno, Nevada), D. A. MacInnes (Physical Chemist, Member of the Rockefeller Institute, 66th St. and York Ave., N.Y.), Henry Field (Anthropologist, Library of Congress, Washington, D.C.), Harlow Shapley (Director of Harvard Observatory, Cambridge, Mass.), Merrill Bernard (Hydrologic Director, U.S. Weather Bureau, Washington, D.C.), James Alexander (Mathematician, Institute for Advanced Study, Princeton, N.J.), I. M. Kolthoff (Chemist, School of Chemistry, University of Minnesota, Minneapolis, Minn.), A. L. Nadai (Westinghouse Research Laboratories, East Pittsburgh, Pa.), Irving Langmuir (Associate Director, Research Laboratories, General Electric Company, Schenectady, N.Y.), J. W. McBain (Chemistry, Stanford University, Calif.), Charles E. Kellogg (Chief Director of Soil Survey, U.S. Department of Agriculture, Bethesda, Md.), S. E. Smith (Director, Society of Friends of Soviet Russia, American Soviet Science Society), D. W. Bronk (Physiologist, University of Pennsylvania), A. U. Pope (Director, Iranian Institute, New York City), J. Heiman (Columbia University, New York City, American Review of Soviet Medicine, Sydenham Hospital)]; Mexico [Manuel S. Pallarta (Physicist, President of National Academy of Sciences of Mexico, Director of National Polytechnical Institute of Mexico)]; France (represented by the president of the Academy of Sciences of France, the Director of the Pasteur Institute of Paris, Prof. Joliot Currie, etc.); Hungary [Prof. Albert Szent Györgyi, Prof. M. Santha, etc.]; India [Dr. Saha (Physics)]; Sweden, Czechoslovakia, Finland, Poland, China, and many others.

patient. Therefore, every man presenting himself with an urethral discharge should have immediate treatment for gonorrhœa in order to protect the patient himself from the danger of possible complications of this disease and to protect the public from a potential source from which gonorrhœa might spread to other persons in the community.

"Find V.D. Contacts — Report V.D. Cases"

Clinical and Laboratory Notes

A SIMPLE METHOD FOR REMOVAL OF RADIO OPAQUE FOREIGN BODIES

By Arthur M. Vineberg, M.D.

Montreal

The method which we are about to describe has been used by the author for at least 10 years. He has found it to be most efficient when dealing with foreign bodies in the upper and lower extremities, chest or abdominal wall. The majority of the cases upon which our experience is based, were those with foreign bodies in upper or lower extremities. We are reporting our method because of its simplicity and because the anæsthetists with whom we have worked have pressed us to do so.

TECHNIQUE

The foreign body is first localized in a general way by antero-posterior and lateral x-ray plates. The patient is placed on a table either in the x-ray room or in the operating room if there is a portable x-ray available. Under general anæsthesia and under tourniquet control, the area containing the foreign body is prepared and draped. A large towel is placed over the prepared area. Two straight skin needles, held by artery forceps are placed under this towel. The fluoroscopic screen is brought into position. The surgeon's gloves and the operative field are protected from the fluoroscopic screen by the covering towel.

Under fluoroscopic vision, needle No. 1 is inserted on the lateral aspect of the limb in a plane horizontal to the table until the point of the needle touches and moves the foreign body.

A second needle is then inserted directly over the foreign body at a right angle to the horizontal plane until its point also touches and moves the foreign body. It is obvious that the foreign body must lie between the two needles (see Fig. 1). The fluoroscopic screen is removed, the lights are turned on and under

direct vision, an incision is made between the two previously placed needles.

In the foot or the hand and in those cases of small foreign bodies, an artery forceps is inserted through the skin incision. A fresh sterile towel is placed over the entire operating field and the fluoroscopic screen is moved into position. Under direct vision and by means of

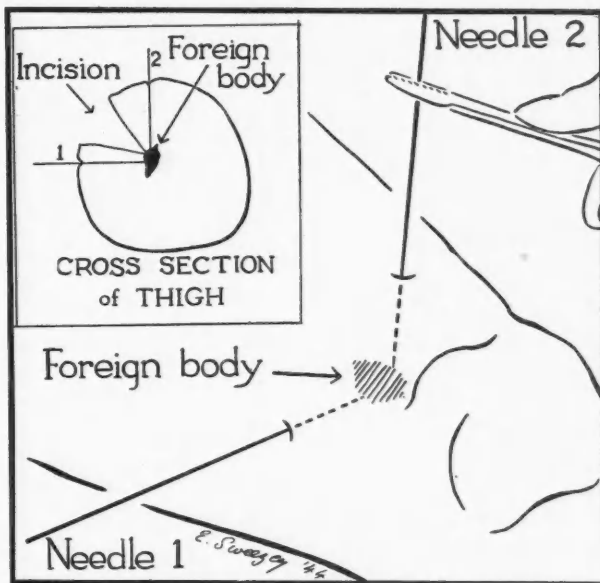


Fig. 1

blunt dissection, the artery forceps is directed between the two needles until it comes in contact with the foreign body. When possible the foreign body is grasped by the forceps. The lights are turned on and under direct vision the foreign body is removed.

We have found this a highly desirable procedure. It quickly locates a foreign body and permits of its removal regardless of the depth of its location within a very few minutes. We have seen no complication resulting from the introduction of the needles.

A NEW GOLD PREPARATION FOR TREATMENT OF RHEUMATOID ARTHRITIS

By D. Robinson, M.D., C.M.

Banff, Alta.

The new gold preparation, lauron, has been on trial in most of the arthritis clinics in the United States, during the past year. Lauron is aurothioglycolanilide. It is stated to contain monovalent gold attached to an organic residue through a sulphur linkage. The molecule contains approximately 54% gold. As prepared for intramuscular administration, it is a pale yellow suspension of an amorphous solid in sesame oil.

Solganol (aurothioglucose) and myochrysine (aurothiomalate), are the two older preparations which we have used. The therapeutic advantage of using these two preparations was often overshadowed by the danger of toxic reactions. The task has been to try and find an improved form of gold to overcome this danger.

It seems likely that lauron will replace these more toxic forms of gold. Apparently there have been no serious, toxic reactions to lauron, even with much larger doses than were formerly given. We think that the results with both the old and the new gold have been equally good. Probably with lauron the results will still be better, as it is very slowly absorbed and definite improvement may not be noted until the twenty-fifth dose is given. It thus remains to be seen just how good this gold preparation is.

In our Banff clinic with former gold preparations we had about two serious cases of exfoliativa, in a hundred cases. We have had none with the new gold, lauron.

Since April, 1944, we have been using this product in increasing quantity. We have used it mostly on those cases which showed signs of toxicity to the older preparations. Some new cases were started on lauron from the beginning, but most of the cases in this series were taking it because of the toxicity of older preparations.

Of 66 patients in the hospital for arthritis at this time about 45 are the rheumatoid type, the others being osteoarthritis and fibrositis, with a few spondylitis ankylopoietica and the odd case of specific arthritis.

Of those on gold at this time, at the end of 1944, 12 are on myochrysine, and 33 on lauron. The doses of lauron are heavier than the doses of myochrysine. With lauron we commence at 25 mgm. and increase to as high as 300 mgm. per dose. The dosage of myochrysine was to commence with 10 mgm., then 50 mgm., then up to 100 mgm. and remain on that dosage until a total of one gram was given. Then there was an interval of two months before commencing a second series. With lauron it is not necessary to have an interval, with a consequent saving in time.

As has been said so often in connection with the treatment by gold, it is not wise to give it outside an institution. The same holds good with the new gold. It is not wise to risk treatment with an ambulatory patient.

It should also be noted that all precautions taken with the older form of gold should be taken with the new, so that nothing untoward may happen. It is possible that with the new gold it may be permissible to take less precaution, but we do not know this yet, and it would be well to proceed slowly to conclusions in this matter.

Of 55 lauron cases, three had a slight rash. One had erythema nodosum, which probably originated during a series of myochrysine. During a course of myochrysine she developed an irritation of the skin and we decided to change to lauron. One case of abscess of the buttock developed because of a highly concentrated dose. Several had mild sore mouth.

Of 46 myochrysine cases two had a rather severe rash, one a slight rash. One case had irritation of the skin developing along the lines of exfoliativa and we switched to lauron. However the exfoliativa developed and was fairly severe.

One note must be made here. The doses of lauron were much larger than the doses of myochrysine generally: 3,750 mgm. were given in one series of lauron. The largest amount given in one series of myochrysine was 1,860 mgm.

There did not seem to be any particular advantage in the larger doses and we are now lessening the doses. We feel that there may be no reaction of any sort to lauron if the doses are kept to a lower level and certainly no severe dermatitis. We will continue to use both myochrysine and lauron at this time.

55 CASES TREATED WITH LAURON

<i>Reduced sedimentation rate</i>	<i>No reduction</i>	<i>Increased rate</i>
40 cases (72.7%)	7 cases (12.7%)	7 cases

46 CASES TREATED WITH MYOCHRYISINE

41 cases (89.0%)	4 cases (8.6%)	1 case (2.2%)
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Since writing the first part of this paper at the end of 1944 we have been using lower concentrations of lauron. We found that the higher concentrations were effective and not very toxic. Yet there was a disadvantage. In some cases the heavier doses did not absorb readily and remained in the buttock as lumps which broke down and at times formed abscesses. These were in the minority but we believe lower doses will prevent this happening. Also if smaller doses are used we may not have any toxic reactions, at any time, to this gold.

We cannot definitely say that lauron is superior to myochrysine or solganol in therapeutic action. We do believe it is equal to them and if lower concentrations are used we may not experience any of the toxic reactions which are fairly common with the older preparations. If we can eliminate the possibility of dermatitis exfoliativa we will have gone a long way.

CONCLUSION

Lauron seems to be equal in therapeutic value to myochrysine and solganol and to be less toxic. Time will tell if this appraisal of its value is correct.

Editorial

THE CONTROL OF DYSENTERY AND MALARIA

THE saying that disease kills more than bullets is still true in some theatres even of modern warfare. The best example has been in the Pacific campaigns. Brigadier Fairley, Director of Medicine of the A.M.F. brings out very clearly the difficulties attending the fighting in New Guinea.* In the earlier campaigns casualties from sickness were as much as thirty times greater than from battle casualties, but in the course of time a certain amount of control of the situation was gained. Fortunately, this was possible in the case of two of the worst diseases, bacillary dysentery and malaria. It had been found in 1941 that sulfaguanidine was a specific for Shiga dysentery, so much so that many cases could be cured without admitting them to hospital. The most dramatic proof of its value however was obtained in the fighting over the Owen Stanley Range, on the Kokoda trail, in 1942, when severe dysentery broke out among the Australian troops. The disease had attacked the Japanese troops as well, and consequently heavy pollution took place all along the area of operations, over which there was alternate advance and retreat. The casualties amongst the Australian troops were reaching very serious proportions when finally all available supplies of sulfaguanidine in Australia were rushed by air to the scene of operations. Routine administration of 4 gm. was carried out in the case of every man with dysenteric symptoms, and within ten days the epidemic was completely controlled. Many observers believed that sulfaguanidine saved the military situation. It may be inferred that there was no corresponding check in the disease on the Japanese side.

In the case of malaria there was no one incident to illustrate the control which was eventually achieved, but the ultimate results have been equally striking. The campaigning in New Guinea in 1942 yielded extremely heavy casualties from malaria, the hospital admission rate in three to four months almost equalling the total strength of the

Forces involved. At this time quinine mainly was being used as suppressive treatment, ten grains daily. The situation became so grave that in 1943 a special research centre was created in Northern Queensland to investigate the precise value of all known anti-malarial drugs. A medical research unit was formed, comprising medical specialists, entomologists, parasitologists and biochemists. To complete this very thorough organization 500 volunteers were readily obtained from the Army, on whom observations could be carried out. The plan was to expose these men to bites of mosquitoes infected with the malignant and benign tertian malaria, whilst the patients received anti-malarial drugs. Chief amongst these were quinine and atabrin (mepacrine). The results were overwhelmingly in favour of atabrin, both in prevention and treatment, and the conclusive proof was given in the later campaigning in New Guinea. Under an increasingly efficient atabrin discipline the malaria admission rate to hospitals fell almost progressively from 740 per 1,000 per annum in December, 1943, to the remarkably low level of 26 per 1,000 per annum in November, 1944, despite the fact that many of the troops were still located in hyperendemic areas of the disease. It is admitted that other factors contributed to these striking results, such as changes in fighting conditions which permitted of better control of mosquito breeding, but the major credit seems to be due to atabrin in controlling and lowering the rate of malarial infection.

Editorial Comments

Hospital Construction*

The day has long since passed when a hospital means just another building with beds for patients. Nor should hospitals be built unless there is a real need for them. It is true that the need for hospital beds is acute throughout the country, but thought must be given to their proper spacing and above all to their being staffed and equipped.

It is this note of warning that is found in the recent booklet on *Planning and Constructing the General Hospital* issued by our Depart-

* Medicine in Jungle Warfare, *Proc. Roy. Soc. of Med.*, 38: 196, 1945.

* Planning and Constructing the General Hospital. By The Department of Hospital Service, Canadian Medical Association, 184 College St., Toronto. Price 50 cents, June, 1945.

ment of Hospital Service. The hospital world as the architect and administrator sees it does not usually appeal to the ordinary medical man, vital and intimate as his relation to the hospital is. For these matters of administration and construction are highly technical and yet are not medical. There is therefore all the more credit to be given to the author of this booklet for setting out so clearly and attractively the problems and methods of hospital construction. These are forcing themselves more and more on the attention of medical men who find themselves involved in hospital schemes. It is chiefly the smaller units that are dealt with, for it is in these that guidance is chiefly wanted. An instance of one of these is found in the excellent account of a 16 bed hospital at Eckville, Alta., by Dr. Coppock, in this issue.

The modern hospital as well as modern living quarters generally are coming to share more and more (and we hope it will be more and more quickly) in the extraordinary developments of modern engineering and architecture. But there will always be the need for the advice in the countless details of hospital construction which only wide experience can give, and this booklet goes far as a first class source of such information.

Annual Meeting Royal College of Physicians and Surgeons

It is announced that in accordance with the government ordinance banning conventions and meetings for an indefinite period, the 1945 Annual Meeting of the College will not be held this year.

Medical Economics

PROPOSALS OF THE GOVERNMENT OF CANADA TO THE DOMINION-PROVINCIAL CONFERENCE ON RECONSTRUCTION, REGARDING THE NATIONAL HEALTH PROGRAM

The Honourable Brooke Claxton, Minister of National Health and Welfare has authorized the publication of the Dominion Government's proposals regarding national health, as made to the Dominion-Provincial Conference on Reconstruction in Ottawa during the week of August 6, 1945. A Sub-Committee on Social Security, representing both the Federal and the nine Provincial Governments, will study these proposals and later report their findings and recommendations.

THE NATIONAL HEALTH PROGRAM

Scope for Improvement in Health and Health Services

Although great progress has been made in Canada during the first half of this century, there still remains a tremendous job to be done in improving the national health and in extending the benefits of modern science and medical care to all parts of the nation and all sections of the population.

Certain specific diseases have been almost conquered; diphtheria and typhoid no longer exist in those communities which have adequate public health measures. Deaths from tuberculosis in Canada as a whole have fallen from 200 per hundred thousand population at the beginning of the century to 48 in 1944, the lowest in all time. In the past 25 years, infant mortality and maternal mortality have been cut in half, but the rates are still too high. With adequate planning and action throughout the entire country it would be possible to make much more progress than what has already been achieved.

There are great inequalities in the quantity and quality of health care available to different groups of Canadians, and in the costs of such public and private health services and medical and hospital facilities as are now available. These inequalities in part reflect differences in personal incomes, and in part are due to differences between rural and urban areas. Great differences between provinces arise from these same factors.

About 45% of the people of Canada live in rural areas, and on the whole they have much less adequate health services and medical care than are available in large centres of population with modern hospitals and laboratories and where scientists and doctors and specialists of all kinds tend to congregate.

It is becoming evident that the basic condition for good health in a community is the wise use of sufficient money, and that this requires a degree of organization and long-term planning in the twin fields of preventive and curative medicine greater than anything yet attempted in this country.

Under our present system, for the man who can afford to pay, the cost of ill-health falls at the very moment when his earning capacity is cut off. The cost of treatment and cure for the individual who cannot afford to pay is borne to a considerable degree through the benefactions of well-to-do members of the community and the generosity of doctors who give so freely of their time and skill, and more and more by the provincial governments and municipalities. In spite of these efforts desirable treatment is still not obtained in many cases. While much of the cost of illness is thus hidden, it can only come out of the total productive capacity of the country. The advan-

tages of a broader provision of health services on a more equitable basis are obvious.

Health Services in Canada

In Canada health services fall clearly within the jurisdiction of the provinces, which share their administrative and financial responsibilities in this connection with the municipalities. Figures given in the Reference Book on Health Welfare and Labour indicate a total expenditure by provinces and municipalities combined on health services in 1943 amounting to approximately \$41,500,000. Dominion expenditures on health for the same year through the Department of Pensions and National Health amounted to slightly more than \$1,500,000. Individual expenditures on health have been estimated at \$250,000,000 a year. There is a very great variety in the services covered by these expenditures and in the organization of provincial and local programs through which these services are given.

To illustrate differences in organization, it may be mentioned that Divisions of Dental Hygiene are maintained by four provinces; Divisions of Nutrition by three provinces; three provinces maintain Divisions of Industrial Health; Divisions of Tuberculosis Control are found in all but three provinces; only one province maintains a nurses' registry; Divisions of Public Health Nursing are part of every provincial organization except one; health units are part of the organization in five provinces; Divisions of Public Health Education appear in the organization of every province except two; only one province maintains a Division of Entomology. Some of the provinces give free services in mental hospitals, for tuberculosis or for cancer. In some provinces there are full-time salaried municipal doctors, and in other cases partially subsidized doctors who give general practitioner service in sparsely settled areas.

Potential patients per doctor vary from 1,973 in New Brunswick and 1,878 in Saskatchewan to 1,096 in Ontario. Within the provinces there are very disproportionate distributions of doctors. Some of the cities are adequately or relatively over-supplied with doctors, whereas many rural areas are very badly off.

There are also wide variations in the quality of services across Canada—widely varying patient-day costs, patient-doctor ratios and salary ranges in hospitals. There are just as great variations in the incidence of tuberculosis, venereal disease and other communicable diseases.

To remove the disparities in standards of health services in different parts of Canada, to avoid the risks of sudden heavy expenditures, and distribute health costs more widely and equitably, and above all, to obtain the benefits of better health for the great majority of our people,—these are the objects of the proposals

which the federal government is now making with respect to health insurance for all, and increased public health services assisted by federal grants.

Health Insurance

Nearly all countries have adopted health insurance in one form or another. The chief exceptions to date have been Canada, Australia and the United States, which are all federal countries where jurisdiction over health is a matter of local concern and belongs to the states and provinces rather than to the national government. Australia passed a National Health and Pensions Insurance Act in 1938, which has not come into operation. A major Social Security Bill to provide health insurance amongst other measures is now before the United States Congress. The history of the movement towards health insurance in Canada is outlined below.

Health insurance has been widely adopted because it is regarded as the best means of meeting and of distributing fairly the costs of illness and, in conjunction with preventive services, of improving the general health of the nation. Specifically:

- (1) Health insurance enables the cost of illness to be prepaid, so that by paying regular sums when they are well people are able to meet the costs of illness when they are ill without being financially crippled.
- (2) Health insurance not only enables individuals to prepay their medical costs, but does this in such a way as to secure a wide pooling of risks and distribution of costs in much the same manner as any other form of insurance.
- (3) The provision of funds by all persons within a large area makes it possible for hospital and medical services to people in that area to be planned and administered more efficiently and economically than could be done by any other method.
- (4) The provision of better facilities for treatment and advice also operates to reduce the total incidence of disease and preventable death. Health insurance must be accompanied by adequate public health measures of a preventive character, but health insurance itself also provides important preventive benefits.
- (5) Health insurance permits the steady extension of health services into areas not previously covered, and the rapid application everywhere of new methods and services as they are discovered and developed.

Health Insurance in Canada

In both federal and provincial circles, health insurance has been under active consideration

since the last war. In 1941, the Minister of Pensions and National Health called a meeting of the Dominion Council of Health and other interested agencies to study the question. In 1942, the government appointed an Advisory Committee on Health Insurance. In 1943, the House of Commons appointed a Committee on Social Security. To this committee, the Advisory Committee on Health Insurance made a report on March 16, 1943. Widespread discussion occurred on the part of interested organizations and individuals. The Canadian Public Health Association in June, 1942, the General Council of the Canadian Medical Association in January, 1943, and numerous farm, labour and other organizations passed resolutions approving in principle of health insurance.

Included in the report of the Advisory Committee was a draft bill providing for health insurance on a nation-wide basis. This was to be administered by a commission to be established under provincial legislation to be enacted by each province. The estimated cost of health insurance to be provided by this means was \$256 million on the basis of the population in 1941. The federal government was to meet three-fifths of this cost by a grant in aid to the provinces. The provinces would meet two-fifths of the cost by a tax of \$12 imposed upon each adult in the population. The per capita cost was estimated at \$21.60 per every man, woman and child in the country, which would cover a complete medical and dental service, including specialist services and hospitalization.

In May, 1944, a conference was held at Ottawa which was attended by representatives of all the provinces. The discussion principally turned on the estimated cost of the services contemplated under the draft Health Insurance bill and on the manner of meeting this cost. Views were put forward by several provinces which appeared to have the support of most if not all of the provinces. These indicated their strong desire that health insurance should be proceeded with by stages and that any scheme adopted should be flexible enough to permit the provinces to build on the varying services in each province.

Since the meeting in 1944, health insurance has been further considered by the federal government in the light of the views expressed by the provinces.

In the Speeches from the Throne which began the session in January, 1944, and which closed the session in January, 1945, the federal government declared again its desire to bring in a nation-wide system of health insurance as soon as suitable arrangements could be made with the provinces. It was stated that this would be one of the subjects to be brought up at the Dominion-Provincial Conference to be held as soon as possible following the general election.

Desirable Features of a Plan of Health Insurance for Canada

In considering the proposal it would make in connection with health insurance, the federal government had in mind, not only the experience in other countries but the views of the provincial governments to which reference has been made here. It was felt that the proposals of the federal government should be based on the following principles:

(1) Any plan should have the ultimate aim of providing the highest quality of health care for all Canadians in all parts of Canada.

(2) While the scheme should be nationwide in scope, it should also be adaptable to meet the particular local conditions of the various provinces, and therefore should be under provincial administration.

(3) The plan should be flexible enough so that each province, in adapting it to local circumstances, may make use of provincial health services and facilities already in existence.

(4) The plan should be capable of being introduced in any province by several stages if that province so desires, in recognition of the fact that staff, equipment, and administrative experience may be lacking for carrying out an over-all scheme immediately.

(5) The plan should also be capable of coming into effect in separate areas if, in the opinion of the provincial authorities, such an approach is desirable in any particular province, but a time limit must be set for complete coverage of the whole province.

(6) While the national plan must outline the services which are to be provided, the provinces should be able to determine the particular methods by which these services will be made available, including any necessary arrangements with physicians, hospitals, nurses, specialists, manufacturers, druggists, and suppliers of equipment, all of which may be left to the decision of the various provincial administrations in accordance with their view of what is best in their province.

(7) As far as possible, the existing personal relationship between doctor and patient should be maintained.

Proposals of the Federal Government

The specific proposals which the federal government wishes to put forward at this time for consideration by the Conference include:

- (a) Grant for Planning and Organization;
- (b) Health Insurance;
- (c) Health Grants;
- (d) Financial Assistance in the Construction of Hospitals.

It is believed that none of these proposals involves in itself any change in the constitutional jurisdiction or responsibility of federal or provincial governments under the British North America Act.

(a) *Planning and Organization Grant*

As a preliminary step towards the establishment of health insurance, the federal government proposes to make available to the provincial governments grants for planning and organization so that each provincial government may as soon as possible establish a full-time planning staff to prepare for and organize health insurance benefits within the province, and make provision for the training of necessary personnel. This grant will be available as part of an agreement under which the provincial governments undertake to complete the preliminary preparations within 18 months, and, before the expiration of that time, to submit provincial health insurance programs to the federal government. The amount of the grant offered comes to a total of \$620,000, divided among the provinces on the basis of \$5,000 each, plus five cents per person according to the distribution of population at the time of the 1941 Census. The apportionment of this grant by provinces is shown in Table IV.

(b) *Health Insurance Proposal*

The federal government's health insurance proposal is designed to put provincial governments in a financial position to develop and administer a comprehensive health insurance program worked out by progressive stages on an agreed basis. To this end the various health benefits which the federal government would be prepared to assist in providing have been classified (see Table I) and a procedure suggested for a wide degree of flexibility in each province in introducing them.

The proposed federal government's contributions to the cost of each benefit under the health insurance plan as it is brought into effect in each province or in any area within a province is

- (i) a basic grant of one-fifth of the *estimated* cost of each service as shown in Table I

(as from time to time revised by agreement), and

- (ii) one-half the additional *actual* cost incurred by each provincial government of providing each benefit, provided that the total federal contribution does not exceed the amount stated in the table for each service, or a maximum of \$12.96 per person, when the complete program is in operation.

Table I shows the basis of the federal government's contribution to the provincial governments for health insurance in respect of each of the suggested benefits.

In order to get the plan started, for the next three years the cost of each benefit will be taken to be the amounts shown in the table. These figures will be replaced after each three years by the actual average cost of giving each benefit.

The provinces may introduce the benefits by stages and may establish any benefit for the whole or any part of the province. For example, a province may secure assistance in providing nursing assistance in rural areas of part of the province. The federal government would then contribute as above to the cost of this service, for all the people in the area served. This arrangement would allow each province to institute the benefits for which it feels the most pressing need and to develop complete health insurance services through those stages which appear to be most expedient for the province concerned.

In order to ensure early provision of basic services, a provincial government entering the plan would agree to furnish general practitioner services, hospital care and visiting nursing services within two years of its entering upon the plan.

The table of benefits with the figures at which the cost of each will be set until replaced after three years by the average actual cost of each service follows:

TABLE I.
BASIS OF FEDERAL CONTRIBUTION FOR HEALTH INSURANCE
(Dollars per capita)

<i>Service provided</i>	<i>Estimated average cost of service*</i>	<i>% of total cost</i>	<i>Basic Dominion grant (20% of total est.)</i>	<i>Maximum additional Dominion grant (50% of additional actual cost to maximum)</i>
	\$	%	\$	\$
<i>First stage:</i>				
General practitioner service.....	6.00	28.0	1.20	2.40
Hospital care.....	3.60	17.0	0.72	1.44
Visiting nursing service.....	0.60	3.0	0.12	0.24
Total first stage.....	10.20	48.0	2.04	4.08
<i>Later stages</i>				
Other medical services (consultant, specialist and surgical).....	3.50	16.0	0.70	1.40
Other nursing services (including private duty).....	1.15	5.0	0.23	0.46
Dental care.....	3.60	16.0	0.72	1.44
Pharmaceutical (drugs, serums and surgical appliances)...	2.55	12.0	0.51	1.02
Laboratory services (blood tests, x-rays, etc.).....	0.60	3.0	0.12	0.24
	21.60	100.0	4.32	8.64

*Estimated cost to be revised on basis of actual costs after three years.

The per capita cost of the general practitioner services, hospital care and visiting nursing services, grouped together as the First Stage, will be approximately \$10.20 for the country as a whole on the basis of the cost shown in the table. For this, the federal government would provide a basic grant of one-fifth, or \$2.04. In addition it would share equally all additional actual costs up to the estimated total cost. The federal contribution in respect to these three services would consequently be made up of the basic grant of \$2.04 plus an additional amount up to \$4.08 per capita, or a total of \$6.12. Again, on the figures shown in the table and on the assumption that the benefits provided in the First Stage were extended to all of Canada, the cost to the federal government for the First Stage would be \$70 million and about \$45 million for the provincial governments.

A province's participation in the plan would begin

- (1) Upon a province making use of the proposed Planning and Organization Grant within eighteen months and presenting a plan, satisfactory to the Governor-in-Council, describing the existing services and benefits in the province and the stages

- by which benefits will be provided and the full health insurance plan put into effect;
- (2) within the same period of eighteen months making an agreement with the federal government to provide the initial benefits for the First Stage of general practitioner services, hospital care and visiting nursing services within two years of the signing of the agreement. The agreement should further provide for the carrying into effect of the total health insurance program over a term of years, for a registration fee to be paid by or on behalf of every person, who has attained his sixteenth birthday and whose normal place of residence is in the province or area where benefits are provided, for a registration, accounting and reporting system, for the cost of administration within the province to be paid out of money provided by the provincial government, and such other provisions and conditions as may be agreed to between the provincial government and the federal government.

A complete health insurance service for all the people of Canada must obviously take a number

TABLE II.
COST TO THE FEDERAL GOVERNMENT OF INITIAL BENEFITS UNDER HEALTH INSURANCE
FIRST STAGE
(In thousands of dollars)

Province	General practitioner service	Hospital care	Visiting nursing service	Total
Prince Edward Island.....	342	206	34	582
Nova Scotia.....	2,081	1,248	208	3,537
New Brunswick.....	1,646	988	165	2,799
Quebec.....	11,995	7,197	1,199	20,391
Ontario.....	13,636	8,181	1,363	23,180
Manitoba.....	2,627	1,576	263	4,466
Saskatchewan.....	3,256	1,935	323	5,514
Alberta.....	2,866	1,720	287	4,873
British Columbia.....	2,944	1,767	294	5,005
Total cost to federal government.....	41,393	24,818	4,136	70,347

TABLE III.
COST TO THE FEDERAL GOVERNMENT OF OTHER BENEFITS UNDER HEALTH INSURANCE
LATER STAGES
(In thousands of dollars)

Province	Other medical service	Other nursing service	Dental care	Pharmacists	Laboratory service	Total
Prince Edward Island.....	200	66	205	145	34	650
Nova Scotia.....	1,214	399	1,249	884	208	3,954
New Brunswick.....	960	316	988	700	165	3,129
Quebec.....	6,997	2,299	7,197	5,098	1,199	22,790
Ontario.....	7,954	2,614	8,181	5,795	1,363	25,907
Manitoba.....	1,532	503	1,576	1,117	263	4,991
Saskatchewan.....	1,882	618	1,935	1,371	323	6,129
Alberta.....	1,672	549	1,720	1,218	287	5,446
British Columbia.....	1,718	564	1,767	1,251	294	5,594
Total cost to federal government	24,129	7,928	24,818	17,579	4,136	78,590

of years to introduce. The cost to the federal and provincial governments would depend on the health benefits provided at any given time. For the full health insurance program when finally realized the total cost, for the population shown in the 1941 Census and for benefits as shown in Table I, would be \$250 million per annum. On this basis the federal government's share would be \$150 million and the provincial governments' share \$100 million.

On the same assumption the payments by the federal government for the various stages are shown in Tables II and III.

These proposals are being made by the federal government as the most realistic method by which to realize, as soon as possible, the ultimate goal of a complete system of health insurance on a nation-wide basis. The provision of separate stages and the various alternatives left open to the provincial governments have been adopted in order to make the scheme more flexible and practicable, and not with any idea of limiting the total scope. It is hoped that in this way the needs and circumstances of all the provinces can be adequately met, and the greatest possible degree of progress achieved.

(c) *Health Grants*

Previous references have indicated the wide variations in the provision of public health measures in the provinces. The object of public health grants is to ensure a more nearly standard quality and quantity of public health services throughout Canada at a higher level.

Vital statistics, the control of communicable diseases, the control of water pollution, industrial hygiene, tuberculosis control, venereal disease control, laboratory services, maternal and child hygiene, nutrition, mental health, public health research and the training of technical personnel, are all matters of much more than provincial interest, and freely cut across provincial boundaries and affect all the population of Canada. In the field of health perhaps more than in any other field, every part of Canada has a definite relationship to and inter-dependence with every other part. We can't effectively fight separate wars in public health.

There are good reasons why the provision of the public health grants should not await the inauguration of the health insurance plan. The return from the armed services of trained personnel will largely take place within the next eighteen months. It is important that the services of the best people should be obtained for this public health work before they are dispersed,—perhaps to other countries. It is important also that a solid base of public health services should be laid down on which can be built the health insurance plan. The Government is therefore giving consideration to providing a series of grants on the following basis

without waiting for the inauguration of health insurance.

- (1) General Public Health Grant—A General Public Health Grant of 35c per capita annually on the basis of the population at the latest Census of Canada, to be made available to assist the provincial governments in the development of general public health services as described in the First and Third Schedules to the Draft Health Insurance Bill; provided that a province and its local governments shall continue to expend on these public health services amounts exclusive of the grant, at least as great as those spent previously.
- (2) Tuberculosis Grant — A Tuberculosis Grant not to exceed \$3,000,000 annually to be made available to assist the provincial governments in providing free treatment for persons suffering from tuberculosis and to be distributed as follows:
 - (i) 50% on the basis of the per capita distribution of the population as enumerated at the latest Census of Canada; and
 - (ii) 50% according to the average number of deaths from tuberculosis in each province over the previous five years, as certified by the Dominion Statistician,but the grant to a province not to exceed one-quarter of the total monies, exclusive of capital expenditures, expended by the provincial government and its local governments during the previous fiscal year for the prevention of tuberculosis and treatment of all persons suffering from tuberculosis.
- (3) Mental Health Grant—A Mental Health Grant not to exceed \$4,000,000 annually to be made available to assist the provincial governments in the prevention of mental illness, in providing free treatment for all persons suffering from mental illness and for mental defectives. The Grant to be distributed according to the per capita distribution of the population as enumerated at the latest Census of Canada, but the grant to a province not to exceed one-fifth of the total monies, exclusive of capital expenditures, expended by the provincial government and its local governments during the previous fiscal year for the prevention of mental illness and treatment of all persons suffering from mental illness and for mental defectives.
- (4) Venereal Disease Grant — A Venereal Disease Grant not to exceed \$500,000 annually to be made available to assist the provincial governments in the prevention and free treatment of venereal

disease, and to be distributed as follows:

- (i) 50% on the basis of population as enumerated at the latest Census of Canada; and
- (ii) 50% according to the number of new cases of venereal disease reported in the previous calendar year as certified by the Dominion Statistician.

The federal government would match the expenditure of each province up to the limit of each province's share of the grant. The grant proposed here would be in substitution for the existing grant for venereal disease.

- (5) Crippled Children Grant—A Crippled Children Grant not to exceed \$500,000 annually to be made available to assist the provincial governments in meeting the urgent need of an extensive program for the prevention and treatment of crippling conditions in children, and to be distributed on the basis of the population as enumerated at the latest Census of Canada or on such other method of distribution as may be arrived at by the federal government after consultation with the Dominion Council of Health.
- (6) Professional Training—An item not to exceed an amount of \$250,000 annually for professional training of personnel in the field of public health to assist the provincial governments in embarking upon an expanded program of public health services.
- (7) Public Health Research—An item not to exceed \$100,000 annually for Public Health Research to encourage public health research and to assist the provin-

cial governments in meeting emergent conditions.

- (8) Civilian Blind—An amount to be determined annually to be made available to permit the pension age for blind persons to be lowered from 40 to 21 years of age and to provide for treatment of the blind who will benefit therefrom, and of persons suffering from conditions which might lead to blindness, the cost to be financed on the basis of 50% by the federal government and 50% by the provincial governments.

General Conditions—The grants to be conditional upon the Governor-in-Council being satisfied after consultation with the Dominion Council of Health that the provisions and administration of the general public health services and special services are such as would secure the effective and satisfactory use of the grants to extend and improve these services throughout the province.

Estimated Cost—The maximum cost of these grants to the federal government and their distribution to the provincial governments would be as shown in Table IV.

(d) *Financial Assistance in the Construction of Hospitals.*

It is recognized that the provision of complete health insurance services would require a considerable extension in hospital facilities throughout the country. Much of this expansion would be required even for the first stage specified. It is also recognized that this expansion would be desirable quite aside from health insurance in order to provide the proper facilities for treatment and research.

To make a hospital extension program less burdensome to the provincial governments and to local communities, it is proposed that the

TABLE IV.
ESTIMATED COST AND DISTRIBUTION OF PLANNING AND ORGANIZATION GRANT AND HEALTH GRANTS
(In thousands of dollars)

Provinces	Plan- ning and organ- ization grant	(1) General public health	(2) Tuber- culosis grant	(3) Mental health grant	(4) Venereal disease grant	(5) Crippled children grant	(6) Pro- fessional training	(7) Public health research	(8) Civilian blind	Total for health grants 1 to 8*
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Prince Edward Island.	9.8	33.3	25.5	33.0	2.5	4.2			19.5	118.0
Nova Scotia.....	33.9	203.3	178.5	200.6	27.0	225.0			114.0	748.4
New Brunswick.....	27.9	160.1	132.0	158.7	20.0	19.8			136.4	627.0
Quebec.....	171.6	1,166.2	1,107.0	1,156.2	143.5	144.4			452.1	4,169.4
Ontario.....	194.4	1,325.7	765.0	1,314.3	167.0	164.2			284.0	4,020.2
Manitoba.....	41.5	255.4	184.5	253.2	32.0	31.6			60.2	816.9
Saskatchewan.....	49.8	313.6	180.0	310.9	29.5	38.8			64.0	936.8
Alberta.....	44.8	278.7	178.5	276.3	31.5	34.5			47.9	847.4
British Columbia.....	45.9	286.3	249.0	283.8	46.5	35.4			65.8	966.8
Total cost to the federal government.	619.6	4,022.6	3,000.0	3,987.0	499.5	497.9	250.0	100.0	1,243.9	13,600.9*

*Does not include Planning and Organization Grant, which is non-recurring but does include 350 thousand to be spent by Dominion on Professional Training and Public Health Research.

federal government should provide loans to the provincial governments entering health insurance agreements, and through provincial governments to municipalities and other organizations, for necessary expansion of hospital facilities, at a rate of interest equal to or only slightly above the cost of such loans to the Dominion, and that the interest and amortization would be payable out of the hospital care benefit under the Health Insurance Grant, or out of the Tuberculosis Grant or the Mental Health Grant, as the case may be.

SUMMARY

The National Health Program includes proposals for Health Insurance to provide health services to individuals, Health Grants to assist and extend public health and preventive medicine, a grant for Organization and Planning, and provision for low-interest loans for the construction of hospitals. The federal government is developing its own health services so that in its own field it will be fully prepared to discharge its constitutional responsibilities. In order also to assist the provincial governments in their fields the federal government will be prepared to make its staff available in a consultative capacity and to consider providing the staff and equipment necessary for doing those things which the provincial governments agree are capable of being done most effectively by the federal government.

The National Health Program also contemplates the construction of a National Laboratory as a postwar development project, the extension of health services to the Civil Service, the application of proper health and sanitation standards for the federal government buildings, the development of the National Fitness program, the provision of consultative services for departments of the federal government, and a very great increase, wherever possible, in all fields of co-operation between the federal and provincial governments, so as to press forward the best possible health program for the people of Canada.

THE MANITOBA MEDICAL SERVICE (M.M.S.)

By A. Hollenberg, M.D.

Winnipeg

The prepayment plan of the Manitoba Medical Association was incorporated by Act of Parliament in 1942 for the purpose of supplying either surgical and obstetrical medical attention (Plan A) or total medical service (Plan B) on a prepayment basis. This service began to operate September 1, 1944. The Board consists of fourteen medical practitioners and seven laymen with Dr. E. S. Moorhead as

Medical Director. This Service is run on a non-profit basis and is using the set-up of the Manitoba Hospital Service Association (M.H.S.A.) for the enrolment of members, the collection of dues and the disbursement of the funds to the practitioners and other non-medical parties, such as advertising, printing and so on. It is required that only members of the M.H.S.A. can enrol as members of the M.M.S. A monthly fee of \$500.00 at present is paid to the M.H.S.A. by the M.M.S. for acting as its agent in the duties aforementioned.

The M.M.S. has received no government grant or guarantee. It was wholly brought into being by the Manitoba Medical Association with a view to demonstrating to our people that medical coverage can be obtained at a satisfactory premium without government interference and regulation. The financial cost of setting up this service was borne by a joint contribution of the Manitoba College of Physicians and Surgeons, the Manitoba Medical Association and the Winnipeg Medical Society; and as a final act of good faith nearly all participating practitioners have signed a demand note for \$100.00 in favour of the M.M.S. to cover any contingency in the formative stage of the scheme.

In the beginning, as was the case in the formation of the M.H.S.A., membership was temporarily restricted to residents of Winnipeg. It is hoped that when the plan succeeds in Winnipeg the population of the province as a whole may then be allowed to enrol.

A schedule of fees for the General Practitioner has been formulated and passed by the Manitoba Medical Association which forms the basis of fees to be paid by the M.M.S. This scale of fees is built upon the principle of equitable distribution of funds available from the M.M.S., having regard to the relative value of the work done. This schedule of fees was distributed to every member of the profession in the province and it was generally very favourably regarded. As it is felt that for the first few years there will not be enough money available from the M.M.S. to pay full fees, according to the schedule, these objections seem rather theoretical. Some predict that for the initial period the members of the profession will probably receive 50 to 60% of the schedule of fees for any major work. There is a provision that any one service of \$10.00 or less will be paid in full while any service whose charge is greater than \$10.00 will be prorated at the end of each month according to the amount of money available for distribution after operating expenses have been deducted.

SPECIALISTS

This has caused a great deal of concern to the Board. As there is now no complete panel of specialists, the Board has taken the view that, for the purposes of this scheme, a practi-

tioner shall be a specialist in any field in which he designates. In such a field he will be entitled to a premium (25%) on the general practitioner's fee for the same procedure. A practitioner may name a second field in which he will practise (e.g., Major Specialty, Orthopaedics, Minor Specialty, X-ray) but for the minor specialty he shall receive only those fees paid to the general practitioner. A guiding principle of the M.M.S. is to maintain the practice of medicine as it has been carried on up to now, namely, that as many general practitioners have always done surgery, x-ray, etc., they shall continue to practise as heretofore and receive payment on the general practitioner scale of fees for those procedures. It must be stated that the arrangement with the specialists (i.e., 25% bonus on general practitioner fees) is now in the process of negotiation. The principle that will govern in these negotiations is that, as there is only a limited amount of money available for all the practitioners in the scheme, the share of each group or specialty shall bear a fair proportion to the total work done. With tolerance, understanding and reason being shown by all concerned, it will not be long before an amicable agreement is reached on this issue.

At the moment of writing, February 19, 1945, there are on the books of the M.M.S. 1,080 contracts of Plan A (Surgical and Obstetrical); 3,660 contracts of Plan B (Complete Medical Coverage).

The services are to be rendered by the profession in the fulfilment of its obligation to the people who have taken out contracts, and there are no reservations as to previous illness. The aim is to provide an adequate, first-class service to our people without exceptions and reservations, except where there are existing agencies for treatment set up in our province, i.e., tuberculosis and mental disease. Even in these exceptions payment will be made for the services necessary to diagnose and allocate the case to the proper authority.

No drugs, dental service or nursing service are included in the benefits of the M.M.S. No fees are paid outside the Province except in the case of an accident or an emergency condition or operation.

The panel of doctors of the M.M.S. is open to any qualified medical practitioner of our Province, provided he is a member of the Canadian Medical Association (Manitoba Division) or upon the payment of an annual fee of \$15.00 to the M.M.S. where the practitioner refuses to become a member of the M.M.A. This plan is further commendable in that it allows free choice of doctor by the subscriber and no practitioner is bound to accept a patient whom he does not want. There is no pre-arranged designation of physician to patient or vice versa.

The premiums per month for the two plans are listed:

	Plan A (Surgical and Obstetrics)	Plan B (Total Medical Coverage)
Single	\$.60	\$1.50
Married (whole family)	1.75	3.50
Sponsored dependent ..	1.15	2.00

As the M.M.S. was primarily set up to cover those people upon whom the financial burden of a major illness would be catastrophic, the profession at large has insisted and the Board has adopted the rule that where the annual income of a single individual is \$1,800.00 or more and of a married individual is \$2,400.00 or more, then the fee for any operation or major medical illness may be arranged between the practitioner and the subscriber before the service is rendered, and the payment received by the medical member from the M.M.S. shall be credited to the personal account of such a subscriber.

It is felt by many that the premiums above mentioned are inadequate to pay for such a service as we offer. The premiums were arrived at by a consideration of our experience in Winnipeg with the Firefighters Club, which has had a prepayment scheme for the past five years, and the premiums charged by an organization similar to the M.M.S. which has been operating in Detroit, Mich., for the past several years. Time will tell, and the medical profession in Manitoba, without any outside assistance, is to stand the cost of obtaining the experience necessary to arrive at a proper and just premium scale.

CERTAIN DEFECTS OF A NATIONWIDE PLAN FOR PROVISION OF ADEQUATE MEDICAL CARE

[A synopsis of an article by W. G. Smillie, M.D., in "The Journal of the American Medical Association, August 4, 1945, page 1003.]

Referring to three plans* for nationwide medical care that have been put forward in the United States, Dr. Smillie states that "discussions have in many instances been acrimonious and often injudicious. For the most part the discussions have been conducted by groups who may be under suspicion of having a certain amount of bias. . . . Very little attention has been given, as yet, to the opinion of those who are to be the recipients of this service." The author then attempts an interpretation of the thinking of the average American with regard to these proposals.

* Wagner-Murray Bill S. 1050. A National Program for Medical Care—American Public Health Association. Principles of a Nationwide Health Program—Committee of 29 on Research in Medical Economics.

INFRINGEMENT OF LOCAL SELF GOVERNMENT

"Many thoughtful people are of the opinion that a nationwide plan for provision of medical care has a fundamental defect in that it represents an encroachment on local self government. . . . All people instinctively desire security and long for the very best social conditions that can be obtained for themselves and for their families. But most of us are unwilling to possess these benefits at the cost of personal freedom."

"If we demand security at any cost, then it is obvious to most of us that we shall pay too high a price for it. Our democratic traditions have required the maintenance of the principle of local autonomy in community government . . . we feel very deeply and instinctively that the individual rights of personal choice, together with local autonomy in determination of community-wide governmental and social policies, is a basic individual and community right."

"The aged, the helpless and the infirm should be given security by the community as a matter of course. But the young virile, aggressive, ambitious, inventive individual, community or state does not ask for or desire a nationwide, comprehensive, beneficent, compulsory, paternalistic system of social and economic security that is planned by a few men—no matter how wise, how socially minded or how public spirited they may be."

(Dr. Smillie points out that one of the major difficulties in any centrally administered plan would be that of the diverse people throughout the United States. This is a problem which also confronts us in Canada.)

LIMITATIONS OF FEDERAL FUNCTIONS

"Each type of governmental authority—federal, state or local—has certain functions which it is best fitted to administer. For example, the federal government is obviously best fitted to administer public health matters that are of international significance or of interstate concern. But other governmental services are supplied best by the local community."

THE PURSE DETERMINES THE POLICY

"Each of the plans presented to us provides for a certain component of local autonomy in administration. But each plan also provides that the collection of funds, and therefore disbursement of funds as well, shall be a primary function of the federal government. Now it is an axiom of any administrative unit—be it family, small business firm, corporation or community—that 'the purse determines the policy.' Thus any autonomy that might be granted by the federal health agency to a local community would be the autonomy of a child who receives his allowance from his father each

Saturday, on the basis of a week's good behaviour."

The author disposes of the commonly used comparison with the compulsory educational system by reminding his readers that "our compulsory educational system was not imposed on us from above. . . . The great secret of success . . . is that it is an outgrowth of the conscious desires of the great mass of the people. It emerged slowly, through many years of trial."

Continuing, we find: "Not only determination of policy, but the financing of each plan, should be a local responsibility. Supplementary aid may be furnished by the state where the particular situation requires such assistance."

The concluding paragraphs read as follows:

"This in my opinion, is an interpretation of the feeling of the average thoughtful American in relation to provision of adequate medical care for the family and the community."

"He is quite willing to promote any plan which will be of real benefit to the health and welfare of his family and his community but is quite unwilling to accept a revolutionary, nationwide program of social betterment that has not gone through the fire of long, extensive, careful test under a great variety of conditions."

"Most important of all, he is unwilling to surrender the principle of local community autonomy and to delegate authority to the federal government for the control and administration of such a personal and intimate matter as medical care of himself and his family."

(Prepared by the Canadian Medical Association Committee on Economics, Toronto.)

Medical Societies

L'Association des Médecins de Langue Française de l'Amérique du Nord

Le congrès de l'Association des Médecins de Langue Française de l'Amérique du Nord qui devait avoir lieu à Québec au début de septembre est remis *sine die*. Les nouvelles ordonnances imposées aux hôtels empêchent les déplacements massifs parce qu'il devient impossible d'abriter les congressistes.

Fédération des Sociétés Médicales de la Province de Québec

Le Dr J. E. Desrochers a été nommé président honoraire et le Dr E. Thibault, de Verdun, président actif de la Fédération des Sociétés Médicales de la Province de Québec.

North Waterloo Medical Society

The North Waterloo Medical Society held its annual meeting at Westmount Golf Club, Kitchener, on June 6. Dr. H. J. Shoniker was elected president for the incoming year. Dr. Deadman, of Hamilton, was invited to attend the meeting and was astonished to find himself announced as the guest speaker at dinner. He rose to the occasion with an address on "Citizenship".

Société Médicale de Montréal

Quatre grandes questions d'actualité médicale seront au programme des "Journées Médicales Annuelles" de la Société Médicale de Montréal, les 1er, 2, 3 et 4 octobre prochain: le sang et les dérivés du sang; la radiothérapie; l'analgésie obstétricale et la pénicilline.

Divisions of the Association

British Columbia

The forthcoming annual meeting of the British Columbia Medical Association will be held in Vancouver on September 12, 13 and 14. A very good program of speakers has been arranged including the following: Dr. W. G. Cosbie, Toronto; Dr. John H. Fitzgibbon, Portland, Oregon; Dr. John Hepburn, Toronto; Surgeon Lieut.-Commander John McLean, R.C.N.V.R.; Lieut.-Colonel H. S. Mitchell, R.C.A.M.C.; Dr. H. G. Pretty, Montreal; Dr. Forrest E. Rieke, Portland, Oregon; Group Captain F. F. Tisdall, R.C.A.F.; Colonel A. B. Walter, R.C.A.M.C.; Dr. Léon Gérin-Lajoie, Montreal, President of the Canadian Medical Association and Dr. T. C. Routley, General Secretary.

The meeting will be held at the Hotel Vancouver. Some difficulties were anticipated on account of the new regulations regarding conventions, but these have been satisfactorily met.

University Notes

Université de Laval de Québec

La Faculté de médecine de l'Université Laval de Québec nommait en avril dernier six nouveaux agrégés: les Drs Gustave Auger, Euclide Dechêne, Roger Gaudry, Jean-Marie Lemieux, Antonio Martel et J. Emile Pelletier.

Correspondence

Certification of Specialists in Canada

To the Editor:

In a previous issue of the *Journal* (51: 261-264, 1944) you were kind enough to publish an article on the certification of specialists in Canada, which dealt particularly with the rôle played by the Royal College of Physicians and Surgeons of Canada in this undertaking. May I again avail myself of the privilege of using your columns to review further developments in this field.

To date 1,808 applications have been approved for certification, namely:

Anæsthesia	191
Dermatology and syphilology.....	38
General surgery	466
Internal medicine	331
Neurology and psychiatry.....	118
Neurosurgery .....	..
Obstetrics and/or gynæcology.....	49
Ophthalmology	142
Orthopaedic surgery	49
Otolaryngology	109
Pædiatrics	127
Pathology and/or bacteriology.....	..
Radiology	112
Urology	76

In addition to the above mentioned specialties, the College has recently approved for certification the specialties of Neurosurgery and Pathological Anatomy, Clinical Pathology and Bacteriology.

In a number of specialties, practically all of those entitled to certification without examination have been granted certificates by virtue of their established practice and reputation, and it is likely that in the very near future certification in these specialties will be granted only by examination.

In other specialties, particularly in those more recently approved for certification, many who might be expected to qualify by certification without examination, have not yet submitted applications.

It is not the intention of the College to continue indefinitely the granting of certification without examination. As has been emphasized on numerous occasions, the College deemed it expedient to follow the practice of specialty boards in the United States, in admitting in the initial stages of the enterprise, those who were qualified by established reputation.

This procedure has been criticized in several quarters, but a little reflection should reveal its advantages. Not the least of them is to be found in the formation of a strong group, endorsing and actively supporting the ultimate plan of the College, which is to grant certification only to those who have had an adequate training, and have demonstrated their competence by such tests as the College may see fit to impose.

It would not have been proper to require that specialists in the older group should furnish evidence of the same training that specialists of this generation undergo, or to subject them to any examination, other than a scrutiny of their competence and general recognition as a specialist.

The advent of war has interfered with the work of certification, and some specialists in the younger age groups have been admitted without examination, but only after a careful scrutiny of their training and practice, which in not a few cases was continued in the medical service of one of the armed forces.

However the phase of certification without examination is nearing its conclusion, and in the very near future, except in rare cases of individuals of high distinction, certification will only be granted after the candidate has completed an adequate course of study and training under conditions satisfactory to the College, and has demonstrated his knowledge and proficiency by the ordeal of examination.

Anyone who has practised for at least five years in one of the specialties so far approved for certification, who desires to be certified without examination, and has not already applied is strongly urged to apply for an application form without delay. Write to the Honorary Secretary, Royal College of Physicians and Surgeons of Canada, National Research Building, Ottawa.

Certification by Examination.—Arrangements for examination for the specialist certificate have not been perfected as yet, but it is confidently expected that the first examinations for certification in the approved specialties will be held in 1946, and that an announcement will be made by the end of this year.

Admission of Specialists to the Fellowship.—Although only indirectly concerned with certification, it may be interesting to point out that the College has recently approved of holding special examinations for admission to the Fellowship in Medicine and in Surgery, in the following medical and surgical specialties, namely:

In Medicine:—Dermatology and Syphilology, Neurology and Psychiatry, Pædiatrics, and Radiology.

In Surgery:—Neurosurgery, Obstetrics and Gynæcology, Orthopædic Surgery, and Urology.

Needless to say the diploma of Fellowship indicates a much higher qualification than the specialist certificate and will automatically qualify its recipient for certification.

It is suggested that anyone not yet informed on the subject of the fellowship diploma or the specialist certificate, should write at once to the Honorary Secretary of the College, National Research Building, Ottawa, Canada.

F. S. PATCH,
*President, Royal College of Physicians
and Surgeons of Canada.*

1225 Bishop Street,
Montreal 25, Que.

The War Benevolent Fund

The following letter has been received from the Department of National War Services.

To the General Secretary:

This letter is to advise that the Fund known as the Canadian Medical Association Fund in Support of the War Benevolent Fund of the British Medical Association has been officially cancelled as from today's date. Your Administrative Committee is now released from its responsibilities under the War Charities Act, and no longer has the authority to receive money for War Charity Purposes.

Thanking you for your assistance in the war effort and your kind co-operation in the past, I remain,

G. PIFHER,
*Director, Voluntary and
Auxiliary Services.*

Ottawa, August 6, 1945.

Special Correspondence

The London Letter

(From our own correspondent)

DEMobilIZATION OF DOCTORS

It is putting it mildly to say that doctors in the services are seething with discontent on the whole question of demobilization. There has been no official assurance that the time-table will be the same for medical men as for others in the Services, and it is certainly not clear why this should be so or why there should be considerable variation between the three Services. Recruitment is continuing, though women are no longer being conscripted as doctors. The most serious cause for complaint, however, concerns the question of Services establishments. Doctors in all three Services complain bitterly that they are grossly over-staffed while at the same time they know of the serious under-staffing in civilian life. The Central Medical War Committee has just issued another statement, but the fact is that decisions at a high level on policy are urgently required. The British Medical Association, at a press conference, said that we must have five thousand doctors out before the winter. Whether this will be achieved remains to be seen; but certainly demobilization has been one of the chief topics of medical conversation in these rather dull days before the results of the general election are known.

MEDICAL PROPAGANDA

The British Council has just celebrated its tenth anniversary and the work of its medical committee has rightly come in for high praise. This committee is a section in the Science Department, and its *British Medical Bulletin* which goes out in English, French, Spanish, Portu-

guese and Turkish has reached a high level of usefulness. The medical department also deals with requests for copies of papers and general information. It has also started with some films, and, in addition, the Council has played an important part in arranging programs for medical visitors. Altogether, the Council has proved a very valuable body for propagating the developments of British medicine to places abroad.

MATERNITY AND CHILD WELFARE

Over a thousand delegates attended a conference in London organized by the National Association of Maternity and Child Welfare Centres under the chairmanship of Dr. Jane Turnbull. The Minister of Health in an introductory address was able to give some remarkably satisfactory figures on 1944 with a birth-rate of 18 and infant mortality at its lowest ever at 46. The conference discussed the nutrition of expectant mothers and the future position of day nurseries, the latter being notable for what was clearly an attack on the day nursery movement with the Roman Catholic Archbishop of Westminster. An important discussion on the maternity and child welfare services formed one of the main subjects. As one of the speakers

said no one is satisfied with the present set-up. It seems likely in the future that so far as medical officers are concerned, we shall see a split between those dealing with the mothers and those dealing with the babies, particularly if the same doctor can be responsible for the child from birth right through to school age.

ONE HUNDRED YEARS AT ST. MARY'S

St. Mary's Hospital, Paddington, is the youngest of London's teaching hospitals and in its recent centenary celebrations made an appeal for two million pounds for re-building and extending its premises. Perhaps its greatest claim to fame will be judged in the recent developments of penicillin, for it was some of Paddington's dust which took a mould through the windows and interfered with some bacterial cultures in Sir Alexander Fleming's laboratory. It was in these same laboratories that Sir Almroth Wright worked out his vaccines for typhoid, so that if the next hundred years prove as fruitful in providing weapons to fight disease, St. Mary's will have had every justification for its appeal.

ALAN MONCRIEFF.

London, August, 1945.

Canadian Medical War Services

MEDICAL OFFICERS APPOINTED TO THE R.C.A.M.C. — ACTIVE FORCE

JUNE, 1945

(Previous sections appeared in the issues of February, March, May, July, September, November and December 1943, in each issue for 1944 except April and September, and in January, March, April, May, June and July, 1945.)

SECTION L

Name	Address	Date of appointment	Name	Address	Date of appointment
Banghart, A. W.,	London, Ont.	19-5-45	McLister, J. C.,	Windsor, Ont.	19-5-45
Collins, H. A.,	London, Ont.	19-5-45	McMullen, D. G.,	Trenton, Ont.	19-5-45
Earl, T. J.,	Athens, Ont.	19-5-45	Ross, T. H.,	London, Ont.	19-5-45
Howes, J. M.,	London, Ont.	19-5-45	Runnalls, K. W.,	Brydges, Ont.	19-5-45
Koegler, S. J.,	Waterloo, Ont.	19-5-45	Sanders, C. B.,	London, Ont.	19-5-45
Leclaire, G. J. G.,	Montreal	9-5-45	Starr, P. H.,	Toronto	19-5-45
Muldofsky, R.,	Toronto	19-5-45	Struthers, J. D.,	Port Dover, Ont.	19-5-45

MEDICAL OFFICERS STRUCK OFF STRENGTH OF THE R.C.A.M.C.—ACTIVE FORCE

JUNE, 1945

SECTION LI

Name	Address	Date struck off strength	Name	Address	Date struck off strength
Anderson, J.,	Winnipeg, Man.	16-5-45	Jaimet, C. H.,	Hamilton, Ont.	1-5-45
Ball, J. R.,	Chapleau, Ont.	6-6-45	Keith, W. S.,	Toronto	26-5-45
Bell, P. G.,	Winnipeg, Man.	7-4-45	Konkin, A. D.,	St. Catharines, Ont.	1-6-45
Bigelow, H. M.,	North Saskatoon, Sask.	21-5-45	Locke, C. J.,	Winchester, Ont.	21-5-45
Brebner, C. N.,	Belleville, Ont.	19-5-45	Michaud, J. T.,	Kamouraska, P.Q.	7-3-45
Bridge, R. C.,	Assinaboia, Sask.	24-5-45	McDonald, A. D.,	Waterford, N.S.	17-5-45
Chisholm, G. B.,	Rockcliffe, Ont.	2-2-45	Shane, A. G.,	Yarmouth, N.S.	14-5-45
Cipriani, J. A.,	Montreal	26-5-45	Shirton, G. K.,	Waterford, Ont.	17-5-45
Gilchrist, W. S.,	Halifax, N.S.	2-5-45	Soper, W. H.,	Charlottetown, P.E.I.	21-5-45
Grenier, E.,	Ste. Therese, P.Q.	1-6-45	Witkov, H.,	Montreal	5-6-45

Miscellany

Miss Li

[Reprinted by kind permission from "The Canadian Hospital", July, 1945.]

(Dr. Robert B. McClure, F.R.C.S., noted Canadian medical missionary to Formosa and China and in recent years Field Director for China for the International Red Cross and latterly Director of the Friends' Ambulance Unit in China, has written a collection of short articles about the heroic Chinese which has been published by the United Church under the title, "Tales from Free China". One of these stories is condensed below.)

Late in the Fall of 1939, there was an outbreak of cholera in South West China. Now, in meeting an epidemic of cholera in modern times, there are just two things that have to be done. All those exposed to the cholera must be given a jab of cholera vaccine, and then, if any get the disease, they must have salt water pumped into their arms—two quarts per person. It is a very simple process, but very sure-fire in its results.

One of the problems that we faced, then, was to find some pure salt fit for making medicinal salt water. The Government in China is like the Government of any other country, and they do have their formalities, their procedures and their red tape. It was, therefore, a matter of wangling the necessary salt. On inquiring around, I discovered that the salt was in the custody of a rather good-looking young girl. I thought this made matters rather easier for me. That was based on an entirely erroneous assumption, that we so frequently make, that if a girl is good looking she is probably relatively inefficient. I also discovered that the girl concerned was Cantonese, and I did not talk the Cantonese language, so I took with me for interpreter, a young engineer from the League of Nations' transportation service. When I got to the warehouse, however, I found that an interpreter was not required, for the girl had been raised in Hongkong; she had attended school in Hongkong; her family had another home in Singapore and one in Java; she could speak English, French and German and was two up on me. The total stock being seventeen cases, I started off by asking for the entire lot, and she started off by refusing any at all. Eventually we compromised on ten cases.

However, as anyone can understand, in making a deal of that type there were some pretty hot words spoken, so when it was over she asked us if we would make peace by joining her in a cup of tea. When we had finished the tea and were once again on the street, I turned to the engineer and said that I thought that girl illustrated why the Chinese were going to lose the war. Of course, we think nothing of the kind but we frequently say things like that in order to stir our Chinese colleagues up to greater effort. He was surprised at that and asked me why I thought she demonstrated

any weakness. I told him that, here was a girl who claimed she was a nurse, and if she was a nurse, it seemed to me she should have been at the front, and not sitting back in a safe city at a cushy job, looking after a drug warehouse. Since she was sitting back in a safe city at a cushy job, I would like to bet that she had a rather close relative high up in the National Government. I also supposed that the salt job was paying a pretty good salary.

He agreed that the details were right in some ways but in one or two ways he said they were quite wrong, because that girl illustrated why they were going to win this war. She had been a nurse, had been at the front and she was coming back with a convoy of eight ambulances, with eight stretchers in each ambulance. They had been so anxious to get the wounded men back to the base that they had been running in the daytime. Perhaps they should only have run at night, because a low-flying enemy plane picked them up one day. The rest took to cover, but she stayed with her men who could not be taken out. A thirty-pound shrapnel landed just in front of the radiator of the ambulance. When the smoke cleared away, none of her patients required any further nursing care and she herself lay out, badly wounded. The long convalescence to which she had been subjected became very irksome so, having a relative rather high up in the National Government, she had used her pull to get this job so that she could work while she was convalescing. There was no money connected with it; it was a voluntary job, and she paid her own board.

When I went back to get some papers signed and take delivery of the salt, I asked her if this was her story, because I was always a bit skeptical about stories as good as that. Her only reply was to say that it was true, and that since I was a doctor I would probably understand. So she turned around and showed me a hole in her left chest behind, large enough for me to put my fist in. It was still discharging. She had had four ribs removed, after a long convalescence recovering from a shrapnel wound in the lung. The good spirit which she had shown represented sheer courage. Her good looks represented cosmetics properly applied.

Three months later, I was myself in hospital and my nurse came in one day to say that there was a rather tough-looking woman at the door who said she wanted to see me. When she came in and stood beside my bed, there was my nurse from the drug warehouse. She had changed considerably, because she now had no cosmetics and, instead of being clothed in a pretty little silk dress, she wore a leather coat coming out at the elbows, a grease-stained pair of riding breeches and a mud-splashed pair of riding boots. She had come from her cushy job, up towards the front, three days' journey.

We were then just two days behind the front. She had sat on the outside of the Red Cross trucks in the day time. She had slept under the trucks at night, and the average altitude was some 6,500 feet and that is not easy on a chest case. No wonder she looked a bit tough! I asked her what she wanted, and what on earth had brought her away from her job in the warehouse. She handed me a slip of paper and said: "You have two trucks leaving for the front tomorrow at eight o'clock. Sign this little slip, because I am going on your trucks to the front." I told her she was not fit to go to the front. She was not fit to be at work at all. She should have been in hospital herself. But her answer was: "Fit or not fit, Doc, they are having a hot time at the front and they expect an awful lot of us Christians."

You will never have this girl for a colleague, because two weeks later they got her by a direct hit. But there are thousands like her in China, who have come through the heat of a modern war, who have been tempered by having passed through the fire, and they are available to work with us as colleagues in building a new world.

Shortages

We're short of interns, porters, nurses;
Short of sugar. What is worse is
Folks are short of temper, too;
Don't know what we're going through.
Supplies are less and prices higher;
Life is hell for any buyer.
We're not short of questionnaires.
By the hundreds, dozens, pairs
They keep coming, but we're short
Of clerks to find the right retort.
Short of drugs and alcohol.
Short of items large and small.
Pretty soon, like sundry sports,
We'll be doing work in shorts.
Long on headaches; short on sleep.
On our heads short words they heap.
Short of rubber, gas and tin.
Thank Thee, Lord, for aspirin.

* * * *

What with all things getting shorter,
Save my troubles, which increase,
I've a mind to join the Army
Just to get some rest and peace.

—John H. Hayes, Superintendent Lennox Hill
Hospital, in *From Bed to Verse*.

It has been found that when the odour of fresh paint is objectionable—as it is to some people—it can largely be avoided by the use of charcoal. For each room, a paper bag holding a pound or two of charcoal is hung in the centre of the room. It absorbs the odour.

Abstracts from Current Literature Medicine

Tsutsugamushi Fever. Berry, M. G. *et al.*: *War Medicine*, 7: 71, 1945.

Tsutsugamushi fever is an acute infectious systemic disease in which the most striking features are pronounced toxæmia and widespread damage to the capillaries and arterioles. The physician may be inclined to attribute low blood pressure, cyanosis, and tachycardia to myocardial failure, when they are in fact due to peripheral vascular collapse. The clinical picture is much more analogous to that of shock than to that of heart failure. The authors' observations convince them that clinically there is no severe irreversible damage to the myocardium. They feel that the concept is necessary in order rationally to treat disease and properly evaluate prognosis. The asthenia and tachycardia which occur in convalescence are no more pronounced than those which may be expected to follow any prolonged severe illness. One must carefully avoid giving the patient the impression that he has heart disease, because of obvious consequences.

Although the pathognomonic pulmonary lesion is vascular, atelectasis is of clinical importance, and probably occurs much more frequently than has been recognized, and apparently is secondary to the pneumonitis and bronchiolitis that are part of the disease. Massive atelectasis was the immediate cause of death in one case. The rapid shallow respiration which one sees in severely ill patients is of pulmonary rather than cardiac origin.

The authors feel that the pathological changes found in the brain and lepto meninges, like the myocardial changes, are reversible, and if the patient survives his illness permanent sequelæ are not to be expected.

S. R. TOWNSEND

Infectious Mononucleosis; A Study of 96 Cases. Press, J. H., *et al.*: *Ann. Int. Med.*, 22: 546, 1945.

The authors present the findings in 96 consecutive sporadic cases of infectious mononucleosis. The clinical and laboratory features in this series of cases were analyzed and compared with those of other investigators in an attempt to elucidate the diagnostic criteria for this condition.

The diagnosis of infectious mononucleosis is in order in the presence of a suspected clinical picture when the hæmatological findings are positive. The blood smear has been the most constant and characteristic single laboratory feature in the recognition of this disease. A positive Paul-Bunnell test is strongly confirmatory, but its absence does not preclude the diagnosis. Only occasionally is this test positive and the blood picture unrevealing in a patient presenting the characteristic clinical features of this disease. It is sometimes necessary to repeat this test before a positive reaction develops.

Because of the extreme diversity of manifestations presented, the diagnosis may go unrecognized unless the disease is borne in mind and appropriate laboratory procedures carried out.

S. R. TOWNSEND

Neuroblastoma of the Adrenal Medulla in Siblings.

Dodge, H. J. and Benner, M. C.: *Rocky Mt. Med. J.*, 42: 35, 1945.

Although neuroblastoma of the eyes shows a familial incidence in a large number of cases, neuroblastoma of the adrenal in several children in a family is extremely rare, if one is to judge by the published records in English literature. These authors report two authenticated cases, one a girl of 4 and the other her brother of 7 months. Both died, and autopsy showed neuroblastoma of the adrenal with metastases to the liver. The third child in the family,

a year old was well at the time. They cite two possible instances of sibs affected; one reported by Gunby of a boy whose sister had died of something closely resembling his disease clinically, and one by Wahl of a girl whose sister had died of a condition closely resembling hers.

MADGE THURLOW MACKLIN

Surgery

Protein Metabolism During Convalescence after Trauma. Howard, J. E.: *Arch. Surg.*, 50: 166, 1945.

Under the stimulus of war, especial interest has been directed toward protein metabolism after trauma of various sorts and during convalescence.

Judging from the magnitude of the nitrogen losses under consideration in this discussion, the main source of the lost nitrogen must be the body tissues, i.e., the protein of the cells.

The capacity to respond to injury with increased breakdown of protein is an asset to the organism. It is the healthy, vigorous, well fed patient who responds to a given injury, with the greatest breakdown of protein. It does not necessarily mean that his wound will heal faster or resist infection better, for many other factors enter into recovery and return to fitness. Surgeons have long noted that chronically debilitated patients are poor operative risks. Mulholland and associates reported that their patients whose stores of protein were depleted experienced quick healing of decubitus ulcers when they were given large amounts of amino acid. Patients with burns respond much better to skin grafting after their nitrogen stores have been repleted. Concerning the fundamental nature and mechanism of the protein catabolism reaction, there is as yet no knowledge. Traumas of a wide variety increases protein metabolism.

In reactions of great magnitude, there may be extensive wastage of nitrogen and great losses of body protein. The vigour of the protein catabolism depends on two factors: (1) the intensity of the stimulus and (2) the capacity of the organism to respond to the stimulus.

The stimulus may be related to the absorption of devitalized tissues the capacity to respond appears, to some degree at least, to be related to the previous state of protein nutrition.

G. E. LEARMONTH

Pernicious Anæmia and the Early Diagnosis of Tumours of the Stomach. Riglor, L. G. et al.: *J. Am. M. Ass.*, 128: 426, 1945.

In a roentgen study of 211 pernicious anæmia patients on whom examinations of the stomach were made on one or more occasions, carcinoma of the stomach was found in 8%, and benign polyps in 7.1% of the cases. In an autopsy study, reported elsewhere, 12.3% of patients with pernicious anæmia were found also to have carcinoma of the stomach. The data presented appear to indicate an etiological rather than an accidental relationship between pernicious anæmia and tumours of the stomach. The routine roentgen examination of the stomachs of patients with pernicious anæmia has proved to be a valuable procedure resulting in some salvage of cancer cases which might otherwise not have been obtained.

Cases were observed illustrating the rapid change from benign polyp to a cancer, the presence of both benign and malignant tumours side by side, the absence of symptoms in the presence of large tumours, and the development from a small barely detectable lesion to an extensive inoperable carcinoma.

S. R. TOWNSEND

Single Injection Treatment of Gonorrhœa with Penicillin in Beeswax-Peanut Oil. Romansky, M. J. and Murphy, R. J.: *J. Am. M. Ass.*, 128: 404, 1945.

One hundred and seventy-five cases of gonorrhœa in males were treated by a single injection of calcium penicillin in beeswax-peanut oil. There were no failures among 75 patients receiving a single injection of 150,000

units. Ninety-three of the 100 patients who received a single injection of 100,000 units were cured. The remaining seven who received 100,000 units were failures and responded to a second single injection of 150,000 units in beeswax-peanut oil.

A single injection of 100,000 to 150,000 units of calcium penicillin in beeswax-peanut oil will produce and maintain assayable levels of penicillin in the blood for seven and one-half to ten hours, with excretion of penicillin continuing in the urine for twenty-four to thirty-two hours.

The penicillin in beeswax-peanut oil mixture has produced no abnormal reactions locally or constitutionally.

S. R. TOWNSEND

Plastic Surgery and Burns

Immediate Skin Grafting Following Injuries. King, M. K.: *Surg., Gyn. & Obst.*, 81: 75, 1945.

Immediate skin grafting permits many wounds to be closed and primary healing achieved. Abrasive wounds, following thorough cleansing and debridement under pentothal, are covered with a partial thickness graft.

Slicing injuries of the fingertips are treated by immediate application of a thick skin graft. The graft is cut from the flexor surface of the forearm as a large pinch graft (except in females). It is full thickness at the centre and tapers towards the edge.

Injuries exposing tendons should be covered with pedicle skin grafts. A pocket flap should be used for the hand: a pedicle flap for ankle, foot or knee.

Relaxation incisions may be used to release skin to cover compound fractures of forearm or leg. The raw areas left should be covered with split thickness grafts.

Failures of skin grafting may be due to: (1) infection; (2) blood or serum between the graft and its bed; (3) inadequate contact between graft and its bed; (4) movement between graft and its bed.

Sickle Flap for Nasal Reconstruction. New, G. B.: *Surg., Gyn. & Obst.*, 80: 497, 1945.

Skin used for nasal repair should blend in size, shape, colour, and texture with that of the rest of the nose. The donor area should not show noticeable scarring or discoloration.

Forehead skin matches nasal. In an effort to avoid scarring produced by use of forehead skin transferred by temporal pedicle the sickle flap was devised. The flap is about 3.5 to 4 centimetres wide. It starts above the zygoma just in front of the ear and runs backward and upward. It curves forward to utilize the bay of skin just below the hairline, lateral to the midline. Enough skin can be obtained to repair half a nose, an ala, or a tip.

The flap has to be delayed to ensure adequate blood supply. At either the first or second stage the mesial end of the flap may be lined by free skin graft. If the flap is to be used to reconstruct the lower half of the nose it is better to delay bringing down the flap for 3 months.

The donor area is covered with a free graft. As much as possible is excised when the pedicle is returned. Part or all of the forehead graft may be excised at a secondary operation.

Obstetrics and Gynæcology

End Results in the Treatment of Cervicitis. Findley, D.: *Am. J. Obst. & Gyn.*, 49: 614, 1945.

Two hundred and forty cases of chronic cervicitis were treated by the three generally accepted methods of electrosurgery; namely, nasal tip cauterization, electrocoagulation and conization. Histological studies were made before treatment and after healing was clinically complete. Comparisons were made as to the rate and type of healing following each therapeutic measure and also as to resultant complications. The average rates

of healing were found to be the same with all three methods.

The percentage of satisfactory results was greatest after electrocoagulation, second after conization, and least following cauterization. There was very little difference between coagulation and conization in the end histological picture. Fibrous tissue reaction was very low in both procedures although slightly greater following cauterization.

Complications most frequently encountered were hæmorrhage, stenosis and pyometra, and were most frequently seen following conization. Hæmorrhage usually occurs from the tenth to the fifteenth day of the time of separation of the slough. Stenosis with resultant pyometra may be largely prevented by repeated dilation of the cervical canal. Carcinoma was discovered in two unsuspected cases out of 240 examined. Internal menstrual tampons were found to interfere with proper healing. Their use is to be condemned. ROSS MITCHELL

Vaginal Bleeding from Potassium Permanganate as an Abortifacient. McDonough, J. F.: *New England J. Med.*, 232: 189, 1945.

Potassium permanganate is becoming increasingly popular as an agent for inducing abortion. Patients admitted for treatment of chemical burns of the vagina and cervix following its use form 0.4% (65 cases) of all admissions to the gynaecological service of the Boston City Hospital from 1930-43 inclusive. The number of these patients has increased steadily over recent years, 20 being admitted in the last year of the survey.

Insertion of a tablet of potassium permanganate into the vagina results, after about two hours, in bleeding which is profuse, bright red and persistent. The irregularity caused by the chemical burn can usually be felt on digital examination and the speculum shows a bleeding erosion, often with a black eschar.

The use of the potassium permanganate tablets was admitted by 22 patients on routine questioning and in the remaining 43 the diagnosis was made from the typical findings on examination. Of the 40 patients proved to be pregnant 8 aborted. Packing of the vagina for 48 hours controlled bleeding in 34 cases while 10 required the insertion of mattress sutures. Rigid treatment for shock, including several transfusions, was required by twelve. No deaths resulted and there was no evidence of generalized toxicity.

Because of the bleeding a normal pregnancy may be interrupted if the cause is not suspected.

NORMAN S. SKINNER

The Value of the Rhesus Test in Obstetrics. Harrison, C. V. and Meacock, E. C.: *J. Obst. & Gyn. Brit. Emp.*, 52: 36, 1945.

The Rh reactions of a series of 280 selected obstetrical cases are reported. The results confirm those of previous workers in cases of hydrops foetalis, icterus gravis and hæmolytic anæmia. In 3 cases the titre of Rh antibody was tested during pregnancy and was found to fall after about the 20th week: it is suggested that this is due to its absorption by the fetus and is a bad prognostic sign. Rh antibody has been demonstrated in cases of death *in utero* (with expulsion of a macerated fetus): this confirms the belief of Henderson and Javert that this is a 4th manifestation of hæmolytic disease of the newborn. We have not found evidence to suggest there is any connection between the Rh factor and any of the following: repeated abortions, congenital abnormalities, hæmorrhagic disease of the newborn, toxæmias of pregnancy, and also repeated stillbirths and neonatal deaths other than those due to the 4 variants of hæmolytic disease of the newborn. P. J. KEARNS

Ophthalmology

The Treatment of Septic Ulcer of the Cornea by Local Applications of Penicillin. Juler, F. and Young, M. Y.: *Brit. J. Ophthal.*, 29: 312, 1945.

In a preamble the authors state that the results of penicillin applications to the eye are beneficial and sometimes dramatic. A septic ulcer of the cornea, with or without hypopyon, is a matter of considerable clinical severity. The prognosis depends on the virulence of the organism and the general condition of the patient, and varies with age. In children the hypopyon ulcer responds well to routine treatment but in old broken-down patients the prognosis may be bad. The authors make no attempt to evaluate intramuscular penicillin in their paper, only local applications. The number of ulcers they treated were 23, two of which were in the same eye with one month between each attack. Their results were excellent in 14 cases, good in 5, poor in 2, and bad in 2. In their series there were seven over 60, six between 50 and 60, seven between 40 and 49, one was 35 and one was 14. The patient with the two attacks was over 60.

The routine method of treatment was the instillation of drops hourly in the day and two-hourly at night into the conjunctival sac. In addition atropine sulphate was used three or four times a day. The penicillin used was the sodium salt, 500 units to the c.c. In a number of cases, with or without previous local anæsthetic, a few crystals of the penicillin have been applied to the surface of the ulcer itself, the lids being held apart for a minute afterwards. This application was found to cause no undue reactions and could be repeated with impunity. In some cases the pain was severe, but it was felt that it was due to impurity in the drug. Recently they have curetted beneath the overhanging edges of the ulcer before applying the crystals. This method is being used more frequently and is also of value in disciform keratitis and on the trephine blebs where infection is present and this infection has reached the aqueous and even the vitreous. They also discuss the clinical course and those cases with secondary glaucoma. They feel that the Saemisch section should not be delayed in cases where improvement is not being shown, and especially when the intraocular tension is raised. They point out that Rycroft endorses this view and points out the superiority of a Saemisch section over a simple paracentesis.

The authors state that penicillin is not interfered with in its action by the use of atropine, cocaine, homatropine, procaine or decalin. Fluorescein, however, in higher concentrations inhibits penicillin to some extent. They found that vaseline and adeps lanæ do not interfere with the action of penicillin and that it retains its potency for ten to twelve weeks in a refrigerator. At room temperature the vaseline ointment was active for seven weeks, but lanoline ointment became inactive. With an anhydrous base penicillin fails to diffuse, but satisfactory results may be obtained by adding 10 to 20% water to the base. A. ERNEST DOULL

Pathology and Experimental Medicine

Coronary Arteriosclerosis and Myocardial Infarction as Studied by an Injection Technique. Holyoke, J. B.: *Arch. Path.*, 39: 268, 1945.

Using the Schlesinger technique of injecting and dissecting the coronary arteries, the author studied an unselected series of 70 hearts, and presents the findings in these cases. By this injection technique the author was able to study the collateral circulation and the fundamental patterns of the coronary arteries. In all the patients who had severe sclerosis of the coronary arteries, rich collateral circulation was present, but these collaterals were absent in all other hearts except those with marked hypertrophy. In all the cases exhibiting clinical angina pectoris, except one, narrowing or sclerosis of the coronaries, with myocardial scarring was found, but often of slight degree. In such cases, other conditions were present which might bring about myo-

cardial anoxia, as hypertension or aortic stenosis. Twelve of the hearts had occlusions of the coronary arteries, with a total of 31 points of obstruction, 8 recent and 23 remote.

Although the most frequent condition accompanying myocardial infarction or scarring was sclerosis of the coronaries, the author presented cases of infarction without coronary occlusion, and acute and chronic occlusions without scarring or infarction. To explain such cases, evidence was presented to show the importance of modifying factors, such as anastomoses, the fundamental coronary pattern, and conditions other than coronary disease which may lead to cardiac anoxia. These latter factors may be increased oxygen requirements of the heart (hypertension, thyrotoxicosis, valvular heart disease, physical exertion and cardiac hypertrophy); decrease in the oxygen-carrying capacity of the blood (anæmia, carbon monoxide poisoning, oxygen-poor atmospheres, and certain pulmonary diseases); and a decreased volume flow of the coronary circulation (lentic occlusion of the coronary ostia, rheumatic arteritis, aortic valvular disease, cardiac decompensation and certain arrhythmias). Any condition provoking prolonged hypotension may lead to infarction, and the reflex anoxia from cold may bring about the same result in hearts with sclerotic coronaries. The more pronounced any of these numerous factors may be, the less pronounced need be the occlusive effect of coronary arteriosclerosis in the ultimate production of myocardial infarction.

ELIZABETH CORBETT

Hygiene and Public Health

New York State Caries-Fluorine Demonstration, *Am. J. Pub. Health*, 34: 1082, 1944.

The New York State Department of Health recently began the dental examinations of school children in Newburgh, N.Y., which, with the city of Kingston, N.Y., is collaborating in a long range demonstration to determine the practicability of mass protection against dental caries by adding fluorine to public drinking water supplies. Newburgh will be the study area and Kingston the control. Dental inspections of about 1,000 children aged 5 to 14 years will be made in each city. The purpose is to obtain at the outset of the demonstration a dental caries index which will serve as a basis of comparison with the terminal figures at the end of 10 years, the length of time which must elapse before the full benefits of the water treatment are realized. Included in the study will be a pædiatric investigation of a representative sample of the child population, including a general physical examination, urine analysis, and x-ray films of the long bones and centres of ossification.

FRANK G. PEDLEY

What Price the School Health Examination, Editorial, *Am. J. Pub. Health*, 34: 1097, 1944.

The high incidence of physical defects discovered at Selective Service examinations raises the question as to whether the system of school health examinations is functioning properly. The school health examination envisages three procedures: (1) a thorough periodic examination; (2) the use of the examination as a basis of health education for the child, his parents and the teacher; (3) the correction of remedial defects.

The school health examination need not be annual. In fact it is questionable whether the expense of a thorough physical examination is justified annually. Ideally there should be an examination on entrance, twice during the period of school life and at the termination of it. The average period required for this examination is 20 minutes. More frequent examinations may be needed in the case of pupils with special needs and examinations should always be done in the case of referral by teacher or nurse and after absence from illness.

The use of the family physician in making health examinations may well be encouraged. When the

family physician is used he should of course co-operate in filling out the necessary forms. Part time physicians are usually necessary and probably desirable. Their use will usually be satisfactory if proper administrative supervision is provided. The capitation method of payment is definitely to be discouraged.

It should go without saying that the school health examination is only a part of the school health program. The co-operation of the teacher in continuous class room inspection from a health standpoint and in the integration of the school health program with health education and physical education is constantly to be sought.

FRANK G. PEDLEY

Obituaries

Dr. Velyien E. Henderson.—We learn with the deepest regret, on the eve of going to press, of the death of Dr. Velyien E. Henderson, at his summer home. Dr. Henderson was one of the most loyal and valued friends of our Association. Fuller notice will appear in our next issue.

Le Dr C.-A. Bernard, ancien député de Rouville à l'Assemblée législative, est décédé le 20 juin, à Saint-Césaire, à l'âge avancé de 78 ans et 11 mois. Il ne laisse qu'une fille, Mlle Jeanne Bernard. Le défunt exerçait sa profession à Saint-Césaire depuis 56 ans. Toute la population s'y rendit, voulant rendre un dernier hommage au praticien qui l'avait servi si longtemps.

Dr. Allan Boyd Haffner, a veteran of the First Great War, died in the Veterans' Hospital, Kingston, Ont., on August 5, after an extended illness. The late Dr. Haffner, a son of the late Mr. and Mrs. Phillip Haffner, of Kingston, was born and educated there. He attended the public schools and the Kingston Collegiate Institute, and graduated from Queen's Medical College in 1918.

He served with the Queen's Medical Corps unit during the First Great War overseas, returning to Canada in 1917, and re-entering Queen's Medical College from which he graduated the following year. He later took postgraduate work at Manhattan College in New York City in eye, ear, nose and throat work. He practised his profession in Belleville and Ottawa.

In recent years, due to poor health, Dr. Haffner had been forced to retire and resided with his only brother, Fred A. Haffner. He was a member of Bethel Congregational Church, and in his early years took an active part in the choir, singing in the Bethel quartet, of which his brother was a member.

Dr. Arthur Gordon Hodgins died on July 15 at Honolulu, Hawaii. Dr. Hodgins was born at Lucan, Ontario, 1875. He graduated in medicine at University of Toronto, 1896. He started practice in Petrolia, Ontario, and went to Honolulu in 1899. His happy disposition, combined with natural good judgment and a clear brain and skilled hands, allowed him to undertake with seeming ease work far beyond the ordinary.

His career in Honolulu was outstanding. He became President of the Hawaiian Medical Society and also of the Hawaiian Territorial Medical Association. Shortly before his death he was honoured with the title of President Emeritus of that Association.

Dr. Nelles Boyd Laughton, formerly of the staff of the University of Western Ontario Medical School, died on July 15.

Dr. Laughton received his B.A. from the University of Toronto in 1922, and his master of science degree from the University of Western Ontario in 1924. In 1933 he received his medical degree from the University of Western Ontario. In 1922 he became a demonstrator at the University of Western Ontario Medical School, and left there in 1934, when he was an assistant pro-

fessor. Since that time he has been engaged in private practice in Toronto.

Dr. Laughton was born near Strathroy. In 1925 he married Katherine B. White, of London, who survives.

Dr. Thomas Richard Little, aged 63, well-known Ottawa pathologist, died suddenly at his home on July 23. A native of Kingston, he taught for several years on the Queen's University faculty of medicine. He went overseas in the last war with the Canadian Army Medical Corps, serving with the mobile laboratories in Cairo and Salonika.

Dr. A. H. Mann, of Olds, passed away on July 26 after a lengthy illness. He was born in Stittsville, Ontario, November 20, 1889. He graduated from McGill University in 1915 and came to Olds in 1916. He took an active interest in public affairs and was candidate for the Legislature in 1935 but was defeated in the landslide that brought the Social Credit party into office.

He was a member of the Shriners, as well as the Elks and the I.O.O.F. Some years ago in his x-ray work he was severely burned from which he never recovered. He was unmarried.

Dr. Charles H. Montgomery, a prominent New York physician, passed away suddenly at his home in New York July 13. He was born in Saint John, N.B., where he received his early education, graduating from Saint John High School. He received his medical degree at McGill University, where he graduated with high honours. From his graduation up until the time of his death he had practised his profession in New York City. He was a son of the late John Montgomery, the first principal of old Albert School in West Saint John.

He is survived by his widow, two daughters, two sons, all of New York; one sister, Mrs. C. T. Purdy, widow of the late Dr. Purdy, Moncton; one brother, Robert, who is prominent in financial circles in Boston and Massachusetts; six nephews and one niece.

Dr. Colin Andrew McDiarmid, aged 69, former president of Vancouver Medical Association and general practitioner in Vancouver for 41 years, died on July 12 at Shaughnessy Military Hospital after a lengthy illness. Born in Taylorville, Ont., he received his medical training at McGill University, and in 1903, the year of his graduation, came to Vancouver. He was admitted to the Medical Association there in 1904. Dr. McDiarmid was president of the association during 1941-42. He served in the First Great War as a senior brigade medical officer of the 29th Battalion and was wounded in France in 1915. Surviving are his wife, three daughters, and three sisters.

Dr. Henry Arthur McFarlen, aged 73, practising physician in Winnipeg for several years and on the Winnipeg school board for the Elmwood district for about 15 years, died July 17 in the Winnipeg General Hospital. Born at Mount Forest, Ont., Dr. McFarlen came to Winnipeg in 1910 and received his B.A. at Wesley College. He practised in Winnipeg with offices at his residence. He retired in January, 1944. His wife, Bertha Jessie McFarlen, predeceased him in 1938, and Dr. McFarlen is survived by three brothers, Andrew, of Regina; Thomas J. McFarlen, of Mount Forest; Wesley, of Vancouver; and three sisters.

Dr. Charles E. McMehen, aged 60, died in Detroit on July 7, after a brief illness. He was a former Londoner and graduated from the University of Western Ontario Medical School in 1912.

Dr. McMehen was born in London, the son of the late Charles and Margaret McMehen. He served overseas three years as a major in the First Great War and for two years, after returning to Canada in 1920, he was in charge of the army hospital at Guelph. He practised in Detroit and Berkley for 24 years. He was a member

of the Wayne County Medical Society and London Masonic Lodge.

Surviving are his widow, the former Grace Bower; two daughters, Mrs. Frank E. (Doris) Snedecor, of Los Angeles, and Margaret Ann, at home; one sister, Mrs. D. P. Roberts, of Detroit; and three grandchildren.

Dr. Curtis Richard Newman. Retired from practice four years ago, Dr. Newman, 63, died suddenly on August 17 at his home at Long Branch. Born in Dunnville, he graduated in medicine from the University of Toronto, and began practising at Dover Centre, in 1905. In 1908, he moved to Toronto, where he practised until his retirement in 1941. He was married in 1910.

Dr. Newman is survived by his widow, Ethel Dils Newman; and two daughters, Mrs. John Goodall, Vancouver, and Mrs. Howard Cunningham, Toronto.

Le **Dr Armand Richard**, attaché comme spécialiste au Sanatorium Saint-François de Sherbrooke, est décédé ces jours derniers à l'âge de 50 ans. Originaire de Saint-Ours-sur-Richelieu, où il naquit le 8 avril 1895, il était un ancien élève du Séminaire de Saint-Hyacinthe et de la faculté de médecine de l'Université de Montréal. Ancien interne de l'Hôpital Sainte-Justine de Montréal, il était attaché au Sanatorium Saint-François depuis l'ouverture de cette institution. Outre son épouse, née Gabrielle Massue, le défunt laisse quatre fils et deux filles: Jean, Claude, Michel, Louis-Emile, Gaspard, Armand et Ginette. Deux frères lui survivent également: MM. Alphonse Richard, de Saint-Ours-sur-Richelieu, et Rosaire, Worcester, Mass.

Dr. James A. Roberts, born August 18, 1876, died suddenly of a heart attack on July 23, 1945. He was a graduate in medicine, University of Toronto, and a Fellow of the Royal College of Surgeons of England. Shortly after qualifying for his fellowship in surgery, he joined the Canadian army and served in the South African War in 1900 and 1901. On his return he was appointed to the surgical staff of the Toronto General Hospital. When the first World War broke out in August, 1914, he was given command of the University of Toronto Hospital, known as No. 4 Canadian General Hospital, which he took to England and later to Salonica. Later he was appointed inspector of hospitals in England for the Canadian forces. For his military service he was appointed a Commander of the Bath. On returning from overseas in 1919 he continued in practice until his appointment as Assistant Medical Director of The Canada Life Assurance Company in October, 1925.

His hobbies were golf and hunting. He greatly delighted in the northern woods of Ontario, which he visited every year in the hunting season. He had a real capacity for friendship and was highly esteemed by those who knew him well.

Lieut.-Col. William Elmsley Scott-Moncrieff, M.D., F.R.C.S., died suddenly in the Royal Jubilee Hospital on June 22.

The well-known eye, ear, nose and throat specialist of Victoria passed away in his 75th year.

Formerly of the Indian Medical Service, the late Dr. Scott-Moncrieff was born at Dalkeith, Scotland, and educated at George Watson's College, Edinburgh, and the University of Edinburgh. He served with the Chitral Relief Force on the Northwest Frontier of India, and was with the China Expeditionary Force in India from 1915-17.

Dr. Scott-Moncrieff's son, Dr. R. Scott-Moncrieff, is on active service with the Army.

Dr. Roy Clifford Shaver died on July 25. He was born in Toronto, where he received his early education. He attended Queen's University and graduated in medicine from the University of Toronto in 1920. For 12 years he practised in Stayner. Returning to Toronto in 1932, he practised as a foot specialist.

Dr. Shaver was a member of North Toronto Lawn Bowling Club, Eglinton United Church and the Masonic Order.

Surviving are his widow, formerly F. Myrna Butler; a daughter, Lois; a son, LAC. Donald Alfred Shaver, R.C.A.F., overseas; a brother, George H. Shaver, K.C., and two sisters, Mrs. Gordon Bender and Mrs. Jean Doan, all of Toronto.

Dr. Mills Shipley, aged 61, well known Calgary physician, died on July 16. He served overseas during the First Great War with the R.C.A.M.C. from 1915 until 1919, when he returned to Calgary and started private practice.

He served as a major in the medical corps during this war and was stationed in Halifax for two and a half years. He was later stationed at the internment camp hospital in Lethbridge until ill health forced him to retire in September, 1944.

Dr. Shipley graduated from Western University in London, Ont., in 1912 and moved directly to Calgary. He was born in Clinton, Ont.

A brother, Dr. William Shipley, died in Calgary in 1929.

He is survived by his widow, Irene; one son, Mills, a graduate of the University of Alberta, now serving with the R.C.N.V.R., in eastern Canada; a brother, Douglas, Toronto; and his stepmother, Mrs. William Shipley, Clinton, Ont.

Dr. S. Gordon Sloan, native of Harwich Township and former resident of Chatham, died recently in Elmore, Ohio.

Dr. Keith H. Wray-Johnston, aged 38, of 3982 West Thirty-sixth, was found dead in his office in Medical Dental Building on July 15. He had suffered from a heart condition for some time.

Dr. Wray-Johnston was born in Rosburn, Man., and graduated from Manitoba Medical School in 1932. He interned in Vancouver General Hospital, and took postgraduate work in obstetrics and gynaecology at the University of Pennsylvania.

He was on the staff at Shaughnessy Military Hospital for some time before going on the Columbia Coast Mission boat at Rock Bay and Pender Harbor.

He served in the army, and resumed civilian practice in January, 1944.

Surviving are his widow, a six-weeks-old-baby daughter, Marian, and his parents, Capt. and Mrs. Harry Wray-Johnston, Shoal Lake, Man. His only brother, Flight-Lieut. Percy Wray-Johnston, was reported missing overseas a year ago.

be ready to render part time service whenever called upon, this is to assist the regular permanent staff of the hospital.

Mine contracts have been readily sought after in times past when drought on the prairies made it difficult to collect for services rendered. There was always an annoying feature where every member of the miners' medical committee felt at liberty to advise the doctor what to do in specific cases. There was also an objection to such contracts as at any time 60 days' notice could cancel the contract and the doctor had no asset in the practice, for once the contract terminated there was no private practice which would enable the physician to remain in the camp. At the present time mine contracts are going a-begging and it is difficult to get capable men to take one and on two or three occasions the miners have had to strike to get a doctor released from the services. If the present situation develops a better understanding between the workman and the physician it will be all to the good.

Dr. G. G. Elder has been discharged from the Services and has resumed practice in Medicine Hat.

Lieut.-Col. W. A. Henry has been discharged from the Services, and has returned to Bentley, where formerly he practised.

Dr. A. C. Walsh, of Calgary, is now at Rochester, Minnesota, doing postgraduate work.

Dr. Constant Megas, of Edmonton, has been discharged from the Forces and has joined the staff of the Oliver Mental Hospital.

Five new hospitals are under construction in Alberta, the Crows Nest Pass, Municipal District Number 40, is erecting a 6 bed hospital at a cost of \$185,000. Ponoka Municipal Hospital District, Number 37, is building a 30 bed hospital to cost \$50,000. Two Hill's Municipal Hospital District, Number 42, is building a 25 bed hospital at the cost of \$70,000, and Mayerthorpe Municipal Hospital District, Number 38, is erecting a 20 bed hospital at a cost of \$57,000 and Consort Municipal Hospital District an urgently needed new hospital of 20 bed capacity.

There are at present 41 Municipal hospital districts in this Province. The total of the 1945 requisitions for hospital purposes is \$581,582.74, levied on an average mill rate of four mills.

The total number of people receiving benefits under the plan is approximately 222,800 or nearly one-third of the total population of the Province.

At the present time some twenty new districts are contemplating coming under the Municipal Hospital Act.

G. E. LEARMONTH

News Items

Alberta

A Special meeting of the Council of the College of Physicians and Surgeons has been called to discuss the fees considered fair for medical services rendered to discharged members of the Forces, and to their dependents. At this meeting a representative will be appointed to the national committee dealing with the question which is to meet in Ottawa shortly.

The Provincial Sanatorium is still under-staffed and due to this fact is unable to occupy the new building addition. The authorities have difficulty in getting experienced help, and until such are available the new portion will remain closed.

In order that the returned members of the forces may have the best medical attention available, the Government is planning to appoint specialists who will

British Columbia

Colonel W. Allan Fraser, of Victoria, has been awarded the O.B.E. Other honours for British Columbia doctors are the O.B.E. to Lieut.-Colonel J. S. McCannel, Victoria, who went overseas in November, 1941, and the M.B.E. to Major W. M. G. Wilson, of Kamloops, who went overseas in November, 1940.

Colonel Wallace Wilson, of Vancouver, well known as an active member of General Council of the Canadian Medical Association and President Elect of that body, has retired from the Army. He is now Regional Medical Officer for Western Canada with the Department of Veterans' Affairs. Dr. Wilson has served in both wars, and has been out of civilian practice for several years now.

Lieut.-Colonel J. U. Coleman, formerly of Duncan, Lieut.-Colonel J. A. McMillan, Vancouver, and Captain W. H. Sutherland, Vancouver, have just returned from service overseas, and are on leave.

Dr. R. W. Irving, of Kamloops, has recently been made the first governor of District 103, International Rotary. This district comprises the interior of British Columbia and parts of Idaho and Washington.

The following Medical Officers, returned from overseas, have completed their leave, and are now posted for duty in the Pacific Command: Major L. W. Bassett, Major C. H. Gundry, Major J. Ross Davidson, Major J. A. Ireland and Major J. A. Wright.

Lieut.-Colonel R. A. Palmer, R.C.A.M.C., has gone to Germany with No. 16 Canadian General Hospital.

Major A. C. Gardner Frost, R.C.A.M.C., is now with No. 22 General Hospital in Great Britain.

Lieut.-Colonel R. A. Hughes, R.C.A.M.C., has joined the Burris Clinic in Kamloops as eye, ear, nose and throat specialist, following his release from the Army. Colonel Hughes was latterly O.C. of Terrace Unit Hospital, and Eye, Ear, Nose and Throat consultant for the Northern area. J. H. MACDERMOT

Manitoba

Altona is to have a \$98,000 up-to-date rural hospital to serve the village and the surrounding district. This will be the first hospital district set up under the new Health Services Act. The legislation provides that the whole capital cost will be borne by the community concerned, while the province will install x-ray and laboratory equipment. The building will be fully modern, with the first floor of steel-concrete fireproof construction and the second floor fire-resistant.

Winnipeg city council has approved plans for the proposed \$1,200,000 Manitoba Medical Centre to be built about the Winnipeg General Hospital and the Medical School. The Manitoba government has named Mr. M. N. Pearson and Dr. F. W. Jackson to sit in with representatives of the city council and the university to discuss the relative cost to be borne by these three bodies.

Defence headquarters has announced that Capt. (acting Major) John R. Matas, R.C.A.M.C., has been mentioned in despatches for gallantry during service with the British Army in Burma. Major Matas, who graduated from the University of Manitoba in 1934, and was a former member of the staff of Selkirk Mental Hospital, enlisted with the British Army in 1941 and has been in India and Burma since 1942.

Major R. A. Tanner, R.C.A.M.C., who went overseas with No. 5 Canadian General Hospital in 1940 has been appointed Resident in Obstetrics and Gynaecology in the Winnipeg General Hospital.

Major S. Jauvoish, R.C.A.M.C., after almost five years' service has resumed civil practice in Winnipeg. ROSS MITCHELL

New Brunswick

Major C. O. McKay, Major Geo. Keddy, Capt. V. J. Sadovsky all of the R.C.A.M.C. have returned from overseas and are visiting at their homes in Saint John.

Dr. D. C. Malcolm, a senior surgeon on the staff of the Saint John General Hospital has resigned his appointment after a connection with the institution covering twenty-six years. Dr. Malcolm served in

the First Great War winning the Military Cross and a mention in dispatches. Dr. Malcolm has been appointed to the honorary consulting staff of the hospital and will confine his work to private practice.

Dr. J. K. L. Irwin has recently been struck off strength Air Force Medical Services and has returned to his home in Bathurst, N.B.

Dr. W. J. Fisher who for some time has been employed on the staff of the N.B. Provincial Hospital is now registered with the Medical Council of New Brunswick on passing the examination of the Medical Council of Canada.

Dr. Lachlan MacPherson and Dr. I. V. Allen MacPherson have returned to duty at the Saint John Tuberculosis Hospital after a period of sick leave completely restored in health.

The medical coverage in certain areas of this Province is wearing very thin, especially in Bathurst and Sackville. All efforts to obtain release of physicians from armed forces have so far been unsuccessful. The shortage of interns in our larger hospitals is also acute, made worse by the cessation of the accelerated medical courses.

The standardization staff meetings of the Saint John General, St. Joseph's and Lancaster Hospitals have been continued throughout the war as luncheon meetings. These meetings continue to be well attended and of sustained interest in spite of increased work and extra strain on all medical personnel.

Dr. Charles W. MacMillan, Chief Medical Officer of the N.B. Department of Health has been appointed assistant professor of health at McGill University. In the Department of Health Dr. MacMillan has had a most successful tenure of office, during which time the aspect of public relations of the department have markedly improved. In spite of many enlistments in the armed forces by members of the Public Health Department the health services of the province have been well maintained. Dr. MacMillan served in the last war and at the outbreak of the present war he again enlisted for a period when his ability as an organizer was much appreciated by the district military officers. He has been closely associated with anti-tuberculosis activities and has done much to advance medical education in this province. Dr. MacMillan at McGill will be a trusted ambassador of good will and understanding from the Maritimes.

A. S. KIRKLAND

Nova Scotia

These being the Dog Days, both "hot" and ordinary, the formation of formal news notes is an unwelcome labour. This is therefore a news letter.

Nearly every ship returning brings one or more of the boys back. Latest arrivals are Drs. C. M. Jones and "Eddie" Ross. The former will shortly resume his duties at the Halifax Infirmary. Drs. H. D. O'Brien and Gordon MacKinnon are expected daily. An unexpected feature of return is the fact that one physician rented his house during his years overseas and now cannot get into it to resume his practice. Dr. C. M. Bethune after spending a leave with Lord and Lady Astor in England, is off back to Germany to continue administrative work. Dr. Gilbert Holland whose speciality is oto-laryngology, is still being retained overseas.

Through the Province those of the brethren who can get a week or even a week-end off are seeking the beaches and other cool retreats. Dr. E. I. Glenister, who has been pursuing postgraduate studies in diseases of the eye, has returned and opened an office in the Page Building in Halifax. Dr. Morris Jacobson has



Clinical studies have indicated that the endotoxin of the pertussis organism plays an important part in the aetiology of the disease and that immunity to this endotoxin, as well as to the *H. pertussis* organism, is important.



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opened his new office in the Georgian Building, same city. Everybody is glad to see Dr. G. A. MacIntosh about again after a long period of enforced inactivity, and Dr. F. R. Davis once more looks hale and hearty. Dr. St. John MacDonald, formerly of Bailey's Brook, Emeritus Professor of Hygiene at McGill University, is spending a holiday at his old home.

During the recent explosions in the Bedford Basin ammunition depot, Halifax, two island doctors, stationed in Halifax, namely Surgeon-Lieutenant L. Prowse and Surgeon-Lieutenant W. Tidmarsh, both of Charlottetown, were in the midst of things with their emergency medical equipment, searching for casualties, which fortunately were unexpectedly light.

Hon. Dr. W. J. P. McMillan, O.B.E., has been honoured by being elected a member of the Board of Governors of the American College of Surgeons.

At the Prince Edward Island Hospital, July 23, to Dr. and Mrs. E. S. Giddings, Charlottetown, twin daughters, Margaret Jean and Rebecca May.

H. L. SCAMMELL

Ontario

The Ontario Hospital at St. Thomas is being turned back to the Province after being used as a military hospital by the R.C.A.F. since 1940. It will accommodate 1,800 patients.

A new hospital was opened in Arnprior, Ontario, last month. The Hon. Dr. Vivian attended the ceremonies.

Colonel Henry Argue has retired from his post as D.M.O., M.D. 2. He has returned to Mount Forest to resume his practice. Lieut.-Colonel Bromley is now acting D.M.O.

Major-General C. P. Fenwick, D.G.M.S., has returned to Ottawa after a tour of inspection overseas.

Major K. M. McIntosh who practised in Simcoe, Ont., before going overseas with the R.C.A.M.C. is now in headquarters M.D. 2 in charge of hospitalization.

Lieut.-Col. F. G. Kergin is returning from overseas on a recall made by the University of Toronto. He will resume private practice and his teaching appointment. Major C. Gray has been similarly recalled.

Major S. L. Lowry is resuming his duties as genitourinary surgeon in St. Michael's Hospital, Toronto.

M. H. V. CAMERON

Prince Edward Island

Dr. C. J. Tidmarsh, Montreal, is visiting his parents, Mr. and Mrs. W. F. Tidmarsh, Charlottetown, P.E.I.

Dr. Dorothy Bentley, Assistant Resident Doctor of Royal Victoria Hospital, Montreal, is spending her holidays in Charlottetown with her parents, Mr. and Mrs. W. E. Bentley.

At the Prince County Hospital on July 12, to Dr. and Mrs. J. K. Beer of Kensington, a son, John Kenneth.

Dr. J. C. Simpson and family of Summerside, are spending their holidays at Dalvay-by-the-Sea. This lovely summer resort is situated in the Canadian National Park, P.E.I.

A. J. MURCHISON

Quebec

The Executive Committee of the Health League of Canada, Province of Quebec Division, has announced the appointment of Madame Paul Hamel as Director of the League for the Province of Quebec, succeeding M. Emile Vaillancourt, recently appointed Canadian Minister to Cuba.

Madame Hamel, née Bird Lacoste, has just resigned her position as Co-ordinator of Consumers' Branch of W.P.T.B. for the Province of Quebec. She is a widow and mother of six children, one of whom was killed overseas while serving with the R.C.A.F.

Madame Hamel is one of the Lacoste family, one of the oldest pioneer families of Montreal, and granddaughter of Sir Alexandre Lacoste, former Chief Justice of the Province of Quebec and Speaker of the Senate. Her cousin, Dr. Léon Gérin-Lajoie, has just been appointed President of the Canadian Medical Association.

The new director has had vast experience in health and welfare organizations. For more than 10 years she conducted the annual subscription campaign for Hôpital Sainte-Justine for children. Her organizing and administrative abilities made her deserving of her responsible positions. Because of her experience the Minister of National War Services called upon her to assume the responsibilities of Associate Director of Women's Voluntary Services at Ottawa.

Madame Hamel later returned to Montreal when her oldest son Georges was seriously wounded and was expected to return to Canada for his convalescence. At that time W.P.T.B. asked Madame Hamel to assume the functions of Co-ordinator of Consumers' Branch for the Province of Quebec.

Saskatchewan

Dr. John W. Bawden, Manitoba 1945, registered on June 6. Dr. Bawden is on the Cancer Clinic Staff of the Grey Nuns' Hospital, Regina.

Dr. C. R. Scribner who practised at Antler, Sask., is now practising at Teulon, Manitoba. Dr. B. E. Knapp who was associated with the Humphries' Clinic at Prince Albert is opening a practice at the west coast. Dr. J. H. Duncan has returned to Alberta after practising at Saltecoats.

Dr. G. F. Nelson who has been on the staff of the Weyburn Mental Hospital will assume the duties of Superintendent of the North Battleford Mental Hospital following a postgraduate course in the United States.

Dr. A. R. Coulter has resumed civilian duties following five years' service with the R.C.A.M.C. Dr. Coulter is acting Clinical Director at Weyburn Mental Hospital.

Captain H. M. Bigelow is also resuming civilian practice, having received his discharge from the R.C.A.M.C.

H. D. HART

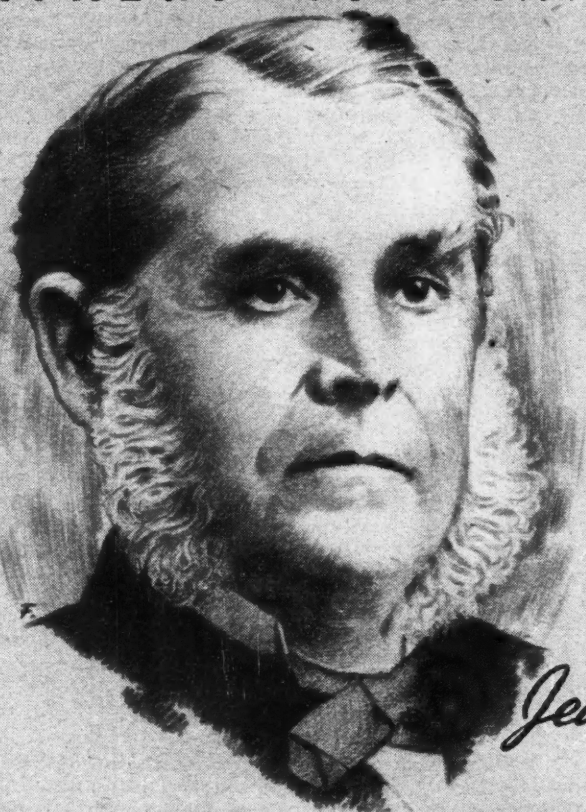
General

The Biennial Conference of the Canadian Home Economics Association, scheduled for August 27 to 31, 1945, in Winnipeg, has been cancelled. This is in accordance with Government regulations cancelling meetings of national groups in congested areas for the time being.

Due to transportation difficulties the examination of the American Board of Ophthalmology, originally scheduled for Chicago, October, 1945, has been postponed to January 18 to 22 inclusive, 1946, and for the same year at Los Angeles, January 28 to February 1; New York, May or June; Chicago, October.

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Rottot was a fine diagnostician and he was greatly in demand as a consultant. He formulated valuable definitions of illness and inflammations. A keen interest in his patients and their welfare was evidenced throughout his entire life and the poor were numbered among his patients. His appearance gave the impression of well-directed force, health and cheerfulness.

One of the aims of Rottot's life was to teach medicine and this was realized through his membership in l'Ecole de Medicine et Chirurgie de Montreal, the first French Medical School established in Montreal. In 1878 when a Montreal branch of Laval University was formed, Rottot severed his connection with the Montreal School of Medicine and

Surgery and accepted a professorship in the new Faculty or Succursale, as it was known. In this institution he taught Internal Medicine and headed the medical clinic, and when the School of Medicine and surgery and the Succursale were united, Rottot was appointed Dean of the Faculty of Medicine.

Rottot was one of the founders and directors of Notre Dame Hospital, doctor of St. Sulpice Seminary and of the Grey Sisters. His interest in medicine was not entirely local and he was active in the Canadian Medical Association. Being of a studious nature his talents were directed into journalistic channels and he was the first director-general of the Union Medicale. Due to his wise guidance this publication survived its first few years.

A man who lived unpretentiously and shunned publicity, Rottot's contribution to medical history is an honorable one. He died in 1910 leaving a rich legacy of medical knowledge to his followers. The record of his professional activities encourages William R. Warner & Company in its policy of Therapeutic Exactness . . . Pharmaceutical Excellence.

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Royal College of Physicians of Edinburgh.—A Quarterly Meeting of the College was held on July 17, the President, Dr. A. Fergus Hewat, in the chair. Dr. Bryce Ramsay Nisbet (Kilmarnock) was introduced and took his seat as a Fellow of the College. Dr. Thomas Addis (San Francisco), Dr. Wm. Kerr Blackie (Salisbury, S. Rhodesia), Dr. Robert Alexander Miller (Grantown-on-Spey), Dr. Alexander James Murray Drennan (Edinburgh) and Dr. Wm. Forbes (Edinburgh) were elected Fellows of the College.

Book Reviews

Patients Have Families. H. B. Richardson, Associate Professor of Clinical Medicine, Cornell University Medical College. 408 pp. \$3.00. Commonwealth Fund, New York, 1945.

The medical profession is far along the road to accepting the fact that the patient is a person and not primarily the host of a disease. The author of this interesting book has set forth in most ingenious fashion his thesis that the patient is not only a person but is also an integral part of an organic group called a family.

It all started when, assisted by a grant from the Josiah Macy, Jr. Foundation, a group of physicians and social workers in New York City undertook a study of the influence of the other members of the family on patients coming to the outdoor department of a large hospital. In some cases, several members of the same family were patients at various times and this made it somewhat easier. Starting off with the sad story of the "Martin Q.'s", the first quarter of the book is devoted to tracing all the tangled skein of frustration, sexual maladjustment, jealousy, poverty and misery which brought the members of fifteen families to the clinic. There is a note of cheer in all this because it appears that in a certain number of cases something was accomplished in the therapy of the members of these families by treating the family as a unit. In other cases, of course, the social disorder had gone so far that absolutely nothing could be done. Subsequent chapters of the book deal with the family as the unit of treatment by the practitioner, the hospital, the medical social worker and the public health nurses. Instructions for these various workers in the exacting task of investigating the family thoroughly are clear and specific.

A particularly useful feature of the book is Appendix E, a glossary of psychiatric terms accurately defined. We feel that this volume is definitely a valuable addition to the literature of psycho-somatic medicine.

Trichinosis. S. E. Gould, Pathologist and Director of Laboratories, Eloise Hospital, Eloise, Mich. 355 pp., illust. \$6.75. Thomas, Springfield; Ryerson Press, Toronto, 1944.

If worms were troubled by class distinctions, helminthic society should be stirred by the publication of this monograph. In a book of some 300 pages, so richly produced that it escapes gaudiness only by a lack of coloured illustrations, Professor Gould has set forth the story of the growth, and present state, of our knowledge of the *Trichina Spiralis* and the lesions caused by this parasite. The physician with no more experience of trichinosis than the amount acquired in his student days to satisfy examiners, will probably be startled to learn that signs of the disease, when properly searched for, have been found in 16% of autopsies in the United States. Geographical distribution is irregularly regional and much influenced by racial eating habits. The lower incidence in Canada is in part due to the homogeneity of the population and in part to the stringency and rigid enforcement of our Public Health regulations.

Although it may appear to some that the subject has been more elaborately dealt with than its importance warrants, there should be no doubt that the author has done a useful task in assembling, assorting, and compressing into one volume, so many clinical records and laboratory reports. He has probably added his name to the list of those who, having enriched medical knowledge by arduous and tedious efforts, are soon forgotten because their labours are more valuable than spectacular. The arrangement of the book is orderly and the writing clear and straightforward but there is the unevenness of touch which seems inevitable when the clinical and laboratory aspects of a disease are described by the same author. Thus the chapter on Pathology has all the fervour with which pathologists tell us of their more apocalyptic visions, but the chapter on Symptomatology is somehow reminiscent of an examination paper by an energetic medical student with a good memory.

The book will have its greatest value as a reference source for those interested in laboratory investigation of diseases due to the helminths and for those working entirely or largely in the field of public health. It should appeal also to the general practitioner desirous to be alert to the possibilities which may lie behind disease manifestations that are inexplicable when approached only with the knowledge ordinarily sufficient for routine practice.

The Venereal Diseases. A Manual for Practitioners and Students. J. Marshall, Major, R.A.M.C., Command Venereologist to the Eastern Command and London District. 348 pp., illust. \$6.25. Macmillan, Toronto, 1944.

The author states definitely in his preface that this book is intended for practitioners and students, and not for research venereologists. He quotes the aphorism, "Diagnosis precedes treatment", and adheres to this principle throughout the book.

In the portion of the book dealing with gonorrhoea, cultural methods of diagnosis, together with a discussion of the complement fixation test, are carefully done. Treatment is well covered and in general follows the usual pattern of treatment on this continent, with the exception that the use of gonococcus vaccine is referred to in more favourable terms than one would expect. Complications are dealt with in a thorough manner. The chapters on syphilis are well illustrated and the text is clear and concise, and for a manual of this type covers the field quite completely. Treatment is logically dealt with, and many of the immediate complications are described. The rarer venereal diseases and diseases encountered in venereology are referred to briefly. There is a worthwhile chapter of practical suggestions at the end of the book.

This monograph should be very useful to practitioners and interns, and may well find a place as a working manual in any venereal disease clinic.

Essays in the History of Medicine. Presented to Professor Arturo Castiglioni on the occasion of his seventieth birthday. Supplement to the *Bulletin of the History of Medicine*. Edited by H. E. Sigerist. 358 pp., illust. \$3.50. Johns Hopkins Press, Baltimore, 1944.

This volume—a Festschrift record—pays tribute to Dr. Arturo Castiglioni, who for more than a generation has been one of the foremost living scholars in the field of medical history. Formerly at the University of Padua and since 1939 on the staff of Yale University, Professor Castiglioni has maintained the great Italian tradition as patriot, world citizen and Renaissance scholar. As an index of the esteem in which he is held, twenty-four medical writers have contributed essays for the occasion, six different languages being represented, and the whole is prefaced by a luminous editorial appreciation written in Professor Sigerist's happiest vein.

*Pete Pyrogen is mad as sin!
Bite, hack, or claw — he can't get in
A Cutter Saftiflask, that's sure —
They're built to keep solutions pure!
Far better judgment he'd have shown
To stick with folks who "mix their own!"*

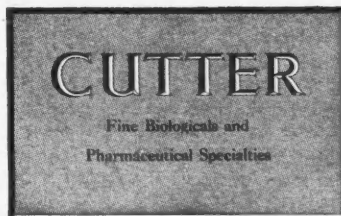


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WINNIPEG, MANITOBA

Such homage to a scholar in exile is a most heartening spectacle in these days and not only does credit to the Johns Hopkins Institute of the History of Medicine but is a reminder of the great tradition of humanism and scholarship which is the central dynamic of the profession of medicine.

The essays are without exception worthy of the reputation of the man whom they honour. All are rich in historical lore and will delight those who are interested in out-of-the-way paths of the medical past. Men whose names are threatened with oblivion by scientific progress are here given their due honour. Of special interest are the sketch of the life of Paul Bert, the author of the classic on aviation medicine who is now coming into his own, a delightful essay on the redoubtable Sydenham and "Don Quixote", early theses on diphtheria, notes on early marine medicine chests, and for the bibliophile a lively discussion of medical matters in the writings of Marco Polo. This is medical humanism at its best and our modern medical world gains richly from such an alliance of science and letters.

Handbook of Industrial Psychology. M. Smith. 304 pp. \$5.00. Philosophical Library, New York, 1944.

This volume on industrial psychiatry is clearly and simply written. Considerable attention is paid to the presentation of experimental work which has been carried out in this field. A good balance is shown in approaching the contentious time and motion studies. Dr. Smith points out that any use of this technique which leaves the worker keyed up is unjustified. This technique is a means to an end and is most useful where new techniques are being brought in. She emphasizes, quite correctly, that the fastest procedure is not necessarily the best but that long term objectives, both with respect to production and with respect to the worker's welfare, must constantly be kept in mind.

Some of the topics dealt with are not sufficiently explored. While inadequate co-ordination is recognized as a factor in accident proneness, the psychological causes which may underlie some forms of poor co-ordination are not dealt with, nor is there any, save a passing reference to the psychological factors which may be productive of other types of accident proneness. Grievances are discussed rather superficially and while external conditions which are productive of grievances are discussed there is no searching consideration of the psychological factors which may produce the grievance prone person.

With these reservations, this is a book to be recommended to industrial physicians and nurses and to those responsible for personnel departments.

BOOKS RECEIVED

When he Comes Back if he Comes Back Nervous. Two Talks to Families of Returning Servicemen. T. A. C. Rennie, M.D. and L. E. Woodward, Ph.D. 32 pp. 15c. National Committee for Mental Hygiene, Inc., 1790 Broadway, New York 19, N.Y., 1944.

Approved Laboratory Technique, Clinical, Pathological, Bacteriological, Mycological, Virological, Parasitological, Serological, Biochemical and Histological. J. A. Kolmer, Professor of Medicine in the School of Medicine and the School of Dentistry, Temple University and F. Boerner, Associate Professor of Clinical Bacteriology, Graduate School of Medicine, University of Pennsylvania. 4th ed., 1017 pp., illust. Appleton-Century, New York, 1945.

The Examination of Reflexes, a Simplification. R. Wartenberg. 222 pp., illust. \$2.50. Year Book Publishers, Chicago, 1945.

Mass Radiography of the Chest. H. E. Hilleboe, Medical Director, Tuberculosis Control Division, United States Public Health Service, and R. H. Morgan, Medical Officer-in-Charge, Radiology Section, Tuberculosis Control Division, United States Public Health Service. 288 pp., illust. \$2.50. Year Book Publishers, Chicago, 1945.

"Courage and Devotion Beyond the Call of Duty". Preliminary edition. 256 pp. Mead Johnson & Co., Evansville, Ind., 1944.

On Modern Syphilotherapy, with Particular Reference to Salvarsan. A. Neisser, translated by I. von S. Warterberg. 42 pp., illust. \$1.00. Johns Hopkins Press, Baltimore, 1945.

My Second Life, an Autobiography. T. H. Shastid, A.M., M.D., LL.B., Sc.D., F.A.C.S., F.A.C.P. 1174 pp., illust. \$10.00. George Wahr, Publisher, Ann Arbor, Mich., 1944.

1944 Year Book of Industrial and Orthopaedic Surgery. Edited by C. F. Painter, Orthopaedic Surgeon to the Massachusetts Women's Hospital and Beth Israel Hospital, Boston. 432 pp. illust. \$3.00. Year Book Publishers, Chicago, 1945.

Essentials of Allergy. L. H. Crip, Assistant Professor of Medicine and Lecturer in Immunology, School of Medicine, University of Pittsburgh. 381 pp., illust. \$6.00. Lippincott, Montreal, 1945.

Catalogue of Lewis's Medical, Scientific and Technical Lending Library. New Edition. 928 pp. 25s. H. K. Lewis, London, 1944.

How Shall I tell My Child? A Parents' Guide to Sex Education for Children. B. S. Mooney, M.D. 192 pp. \$2.50. Cadillac Publishing Co., New York; Longmans, Green & Co., Toronto, 1945.

Vade Mecum of Medical Treatment. W. G. Sears, Medical Superintendent, Mile End Hospital, London. 4th ed., 385 pp. \$3.00. Arnold, London; Macmillan, Toronto, 1945.

Salts and Their Reactions. L. Dobbin, Reader Emeritus in Chemistry, University of Edinburgh and J. E. MacKenzie, Reader-Emeritus in Chemistry, University of Edinburgh. 7th ed., 246 pp. \$2.50. Livingstone, Edinburgh; Macmillan, Toronto, 1944.

Clinics. Vol. 3, No. 6. Edited by G. M. Piersol, Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. 278 pp., illust. \$3.00. Lippincott, Montreal.

Camping for Crippled Children. Edited by H. H. Howett, Director, Social Research, National Society for Crippled Children and Adults, Inc. 120 pp. National Society for Crippled Children and Adults, Inc., Elyria, O., 1945.

Essentials of Body Mechanics in Health and Disease. J. E. Goldwait *et al.* 4th ed., 337 pp., illust. \$6.00. Lippincott, Montreal, 1945.

Physical Diagnosis. R. H. Major, Professor of Medicine in the University of Kansas. 3rd ed., 444 pp., illust. \$5.75. Saunders, Phila.; MacAinsh, Toronto, 1945.

The Attendant's Guide. E. M. Stern. 104 pp. 50c. Commonwealth Fund, New York, 1945.

SUPPLEMENT

The Association

THE SEVENTY-SIXTH ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION, HELD IN MONTREAL

June 11, 12, 13, 14, 15, 1945

THE seventy-sixth annual meeting of the Canadian Medical Association was held in the Mount Royal Hotel, Montréal, during the week of June 11, 1945. The registration included 1,350 doctors and 224 ladies, bringing the total attendance to 1,574.

THE ANNUAL GENERAL MEETING

The Annual General Meeting was held on Wednesday evening, June 13. At this function, Senior Membership was conferred upon the following:

Dr. Robert Beauchamp Boucher, Vancouver; Dr. Thomas Robert Ross, Drumheller; Dr. John Alexander Valens, Saskatoon; Dr. John Silas Poole, Neepawa; Dr. Arthur Leslie Danard, Owen Sound; Dr. Joseph Albert LeSage, Montreal; Dr. Charles Fenwick Wylde, Montreal; Dr. John Francis Teed, Dorchester; Dr. Welton Havelock Robbins, New Glasgow; Dr. James Edward Fleming, Stanley Bridge.

THE HONOUR ROLL

Tribute was paid to the memory of the following doctors who have been killed in action or who died on active service since the last annual meeting:

C. F. Burt, Winnipeg, Man.
A. W. S. Hay, Winnipeg, Man.
C. E. Irvine, Timmins, Ont.
Charles Krakauer, Brooksby, Sask.
Henry Marants, Flin Flon, Man.
E. G. McLoghlin, Hamilton, Ont.
Charles Newell, Toronto, Ont.
D. S. Noble, Winnipeg, Man.
C. G. Sanderson, Toronto, Ont.
W. B. Spafford, Toronto, Ont.
F. H. Stringer, Vancouver, B.C.
G. P. Tanton, Port Dufferin, N.S.
Alan M. Vaughan, Toronto, Ont.
I. Weingarten, Toronto, Ont.
E. A. Willis, Kitchener, Ont.

VALEDICTORY ADDRESS

Dr. Harris McPhedran, the retiring President, presented a brief valedictory address.

INAUGURAL ADDRESS

After his installation as President, Dr. Léon Gérin-Lajoie gave his inaugural address.

THE GENERAL COUNCIL

The General Council met on Monday and Tuesday, June 11 and 12, under the Chairmanship of Dr. A. E. Archer, with 104 delegates present from the nine Divisions. The following is a list of those who answered the roll call:

Drs. G. H. Agnew, Toronto
A. E. Archer, Lamont
F. M. Auld, Nelson
H. Baker, Woodstock
W. W. Bartlett, Brampton
W. G. Beaton, Winnipeg
Wm. Boyd, Toronto
H. E. Britton, Moncton
F. A. Brockenshire, Windsor
F. M. Bryant, Victoria
J. E. Carson, Brantford
Major Gen. G. B. Chisholm, Ottawa
Drs. H. B. Church, Aylmer East
J. L. Clarke, Didsbury
P. S. Cochrane, Wolfville
P. A. C. Cousland, Victoria
C. L. Crang, Sudbury
J. G. Cunningham, Toronto
H. D. Dalglish, Saskatoon
W. H. Delaney, Quebec
C. J. Devins, Aurora
H. V. Dobson, Peterborough
A. F. Dunn, Ottawa
R. W. Earle, Perth
H. S. Ellis, Sherbrooke
H. S. Evans, Brandon
Col. Gordon S. Fahrni, Ottawa
Drs. L. F. Farmer, Mount Stewart
J. R. Fraser, Montreal
U. J. Gareau, Regina
C. A. Gauthier, Quebec
Léon Gérin-Lajoie, Montreal
Duncan Graham, Toronto
R. I. Harris, Toronto
Georges Hebert, Montreal
V. E. Henderson, Toronto
H. H. Hepburn, Edmonton
Carl E. Hill, Lansing
W. P. Hogarth, Fort William
A. Hollenberg, Winnipeg
S. E. Holmes, Eston
J. S. Hynes, Fredericton
George R. Johnson, Calgary
Group Capt. A. D. Kelly, Ottawa
Drs. P. C. Laporte, Edmundston
T. H. Leggett, Ottawa
T. H. Lennie, Vancouver
D. Selater Lewis, Montreal
W. A. Lincoln, Calgary
J. G. B. Lynch, Sydney
Wm. Magner, Toronto
R. H. Malyon, Toronto
C. F. Martin, Montreal
G. O. Matthews, Vancouver
J. C. Meakins, Montreal
A. H. Meneely, Nanaimo
A. F. Menzies, Morden
H. H. Milburn, Vancouver
James Miller, Kingston
E. S. Mills, Montreal
A. J. Murchison, Charlottetown
D. N. MacCharles, Medicine Hat
J. W. McCutcheon, Toronto

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H. E. MacDermot, Montreal
 Eric W. Macdonald, Glace Bay
 J. P. McGrath, Kentville
 F. G. McGuinness, Winnipeg
 J. W. McKenzie, Charlottetown
 K. A. MacKenzie, Halifax
 W. J. McNally, Montreal
 J. F. MacNeil, Summerside
 P. H. McNulty, Winnipeg
 Harris McPhedran, Toronto
 D. M. MacRae, Halifax
 O. W. Niemeier, Hamilton
 Major W. T. Noonan, 24th General Hospital
 Medical Society Overseas
 Drs. F. S. Patch, Montreal
 H. T. Pickard, Oxbow
 W. S. Peters, Brandon
 F. Plewes, Toronto
 A. D. Pollock, Owen Sound
 H. E. Preston, Brockville
 Major H. A. Procter, 1st Canadian Army
 Troops Medical Society Overseas
 Drs. O. E. Rothwell, Regina
 T. C. Routley, Toronto
 J. W. Scott, Edmonton
 W. deM. Sriver, Montreal
 S. D. Shultz, Brandon
 George F. Skinner, Saint John
 A. H. Spohn, Vancouver
 M. B. Stalker, Ormstown
 C. L. Tisdale, Prince Albert
 H. M. Torrington, Sudbury
 Ethlyn Trapp, Vancouver
 J. A. Valens, Saskatoon
 A. F. VanWart, Fredericton
 C. J. Veniot, Bathurst
 R. Vance Ward, Westmount
 Brig. W. P. Warner, Ottawa
 Drs. C. C. White, Chatham
 George White, Saint John
 Wallace Wilson, Vancouver
 Mr. C. B. McComb attended as a representative
 of CAMSI

REPORT OF THE COMMITTEE ON
ARCHIVES

Mr. Chairman and Members of General Council:—

1. Your Committee reports with deep regret the loss of the following members by death during the past year:

Addy, G. A. B., Rothesay, N.B.
 Allan, Robert, Castor, Alta.
 Allyn, Jessie, India (Missionary)
 Anderson, Robt. Brodie, Kildonan, Man.
 Argue, A. W., Saskatoon, Sask. (Senior Member)
 Aull, Erastus, Calgary, Alta.
 Austin, L. J., Kingston, Ont.
 Bagnall, A. W., Vancouver, B.C.
 Baronsfeather, C. G. S., Edmonton, Alta.
 Barnes, E. C., Victoria, B.C. (formerly Selkirk, Sask.)
 Bayne, Robert A., London, Ont.
 Beaver, G. W., Niagara Falls, Ont.
 Belt, T. H., Toronto, Ont.
 Bird, C. H., Gananoque, Ont.
 Black, Howard, Woodstock, Ont.
 Blakely, H. W., Kingston, Ont.
 Bouck, Charles, Calgary, Alta.
 Bourque, L. N., Moncton, N.B.
 Bowman, G., Penetanguishene, Ont.
 Brandson, B. J., Winnipeg, Man.
 Brawley, W. J. J. C., Wynyard, Sask.
 Brown, James, Oungre, Sask.
 Browne, J. G., Montreal, Que.
 Burt, Wing Cdr. C. F., Winnipeg, Man. (Military Service)
 Caldwell, R. A., Port Arthur, Ont.
 Cameron, A. A., Rainy River, Ont.
 Cameron, R. D., Drumheller, Alta.
 Caouette, Professor J., Quebec, Que.
 Carlisle, V., Toronto, Ont.
 Carter, Peter McFarlane, Sydney, N.S.
 Chown, H. H., Winnipeg, Man. (Past President and Senior Member)
 Christian, J. R., Ottawa, Ont.
 Christie, H. A., Vancouver, B.C.
 Christie, H. H., Ottawa, Ont.
 Christie, Neil Alexander, Calgary, Alta.
 Clark, A. M., Toronto, Ont.
 Comeau, F. X., Caraquet, N.B.
 Connolly, N. W., Stettler, Alta.
 Corbett, T. R., Crystal City, Man.
 Creighton, J. F., Estevan, Sask.
 Currie, M., Picton, Ont.
 Davis, Wade, Kimberley, B.C.
 Diamond, F. W., Port Hope, Ont.
 Dobbie, J. A., Ottawa, Ont.
 Dodd, F. J., Pembroke, Ont.
 Drysdale, W. F., Nanaimo, B.C. (Senior Member)
 Eberts, E. M., Montreal, Que.
 Elder, Robert, Vancouver, B.C.
 Faulkner, J. A., Toronto, Ont.
 Fergusson, Angus Alexander, Morinville, Alta.
 Fisher, R. O., Toronto, Ont.
 Frazer, Thos. B., Hatfield Point, N.B.
 Gagnier, L. A., Westmount, P.Q.
 Gallivan, James V., Hastings, Ont.
 Gardiner, G. H., Toronto, Ont.
 Gemmill, E. W., Toronto, Ont.
 Genoff, D. M., Winnipeg, Man.
 Gillis, H., London, Ont.
 Gordon, Andrew Joseph, Vancouver, B.C.
 Gullen, J. B., Toronto, Ont.
 Huenergard, H. H., Kitchener, Ont.
 Haist, O. W., Hamilton, Ont.
 Hall, W. A., Walkerton, Ont.
 Hanks, A. R., Blenheim, Ont.
 Hanna, W. J., Fort Frances, Ont.
 Hassard, G. A., Windsor, Ont.
 Hay, Lt.-Col. Arthur Wesley Stanley, Winnipeg, Man. (Military Service)
 Hislop, J. A., Edmonton, Alta.

Hogg, J. S., Preston, Ont.
Hurlburt, C. W., Edmonton, Alta.
Irvine, C. E., Timmins (Military Service)
Johns, E. P., London, Ont.
Johnson, H. D., Charlottetown, P.E.I. (Senior Member)
Kendall, A. S., Sydney, N.S.
Kerfoot, W. J., Prescott, Ont.
Keyes, M. J., Victoria, B.C.
Kier, James W., Malpeque, P.E.I.
King, A. A., Ladner, B.C.
Klotz, J. E., Toronto, Ont.
Krakauer, Charles, Brooksby, Sask. (Military Service)
Leeder, Forrest B., Victoria, B.C. (Past President)
Lewis, W. A., Barrie, Ont.
Lyon, Mortimer, Toronto, Ont.
Magee, R. C. E., Winnipeg, Man.
Macaulay, B. N., Dunnville, Ont.
Marantz, Capt. Harry, R.C.A.M.C., Flin Flon, Man. (Military Service)
Maxwell, F. Vance, St. George, N.B.
Meahan, T. F., New Aberdeen, N.S.
Messecar, J. W., Mille Roches, Ont.
Mignault, G. E., Montreal, Que.
Millar, Ross, Ottawa, Ont.
Millican, J. A., Calgary, Alta.
Milligan, A. A., Toronto, Ont.
Montgomery, A., Toronto, Ont.
Morgan, C. R. L., Hamilton, Ont.
Morton, A. McD., Halifax, N.S.
McCaffrey, P. S., Agassiz, B.C.
McColl, Thos. H., Tilbury, Ont.
McCollum, J. A., Toronto, Ont.
McCurdy, G. A., Victoria, B.C.
Macdonald, A. A., Toronto, Ont.
McDonald, J. A., Markham, Ont.
McGhie, B. T., Toronto, Ont.
McGillivray, C. F., Whitby, Ont.
McIntyre, J. A., Fredericton, N.B.
McKay, T. W. G., Oshawa, Ont.
McKechnie, R. E., Vancouver, B.C. (Past-President and Senior Member)
McKillop, C. J. A., St. Thomas, Ont.
McKillop, D. A., St. Thomas, Ont.
MacLachlan, D. F., Windsor, Ont.
MacLaren, A. H., Calgary, Alta.
MacLoughlin, E. Gregg, Hamilton (Military Service)
McNichol, W. J., Hamilton, Ont.
Naismith, A. D., Strathfordville, Ont.
Neal, F. C., Peterborough, Ont.
Newell, Charles, Toronto, Ont. (Military Service)
Newman, W. R., Toronto, Ont.
Noble, David Stewart, Winnipeg, Man. (Military Service)
Parsons, R., Red Deer, Alta.
Patton, J. W. T., Truro, N.S.
Petersen, J. N., Montreal, Que.
Platt, E. O., Nobel, Ont.
Pirie, A. Howard, Hudson Heights, P.Q.
Porter, A. S., Timmins, Ont.
Powers, M., Rockland, Ont.
Ranney, A. E., North Bay, Ont.
Reilly, Howard, Montreal, Que.
Reynar, A. F., Palgrave, Ont.
Rhea, L. J., Montreal, Que.
Rice, Wm. H., Sydney, N.S.
Richmond, G. R., Hamilton, Ont.
Robinson, G. W., Arkona, Ont.
Robinson, J. L., Toronto, Ont.
Rutherford, R. T., Ajax, Ont.
Sabourin, J. S., Bonnyville, Alta.
Sanderson, C. G., Toronto, Ont. (Military Service)
Sargent, F. R., Sydenham, Ont.
Shaw, H. S., Montreal, Que.
Shiell, A. G., Kitchener, Ont.
Shier, W. C., Uxbridge, Ont.
Simpson, J. C., Montreal, Que.
Simpson, Roy, Cherrywood, Ont.

Simpson, W. O., Toronto, Ont.
Skinner, S. S., Saint John, N.B.
Smith, Robert Lee, Forest, Ont.
Spafford, W. B., Toronto, Ont. (Military Service)
Spankie, A. T., Calgary, Alta.
Sparling, A. J., Pembroke, Ont.
Stevens, R. S., Ottawa, Ont.
Stringer, F. H., Vancouver, B.C. (Military Service)
Sutherland, J. G., Kingston, Ont.
Tanton, Gerald Pope, Port Dufferin, N.S. (Military Service)
Thomas, M. W., Vancouver, B.C. (Executive Secretary of British Columbia Division)
Thompson, F. E., Ste. Pierre du Charlesbourg, Que.
Thorne, C. W., Saskatoon, Sask.
Thrush, C. A. M., Dunnville, Ont.
Tindale, W. E., Toronto, Ont.
Treadgold, H. A. S., Leduc, Alta.
Vaughan, Alan M., Toronto, Ont. (Military Service)
Veitch, H. D., Timmins, Ont.
Volume, D. A., Bayfield, Ont.
Wallace, J. I., Kamsack, Sask.
Weingarten, I., Toronto, Ont. (Military Service)
Williams, V. G., Winnipeg, Man.
Willis, Eric Albert, Kitchener, Ont. (Military Service)
Young, T. W. H., Peterborough, Ont.
Ziegler, R. E., Campbell River, Ont.
Zumstein, E. W., Delhi, Ont.

There were no special activities of the Committee during the year.

All of which is respectfully submitted.

H. E. MACDERMOT,
Chairman.

Received.

REPORT OF THE EXECUTIVE COMMITTEE

Mr. Chairman and Members of General Council:—

Your Executive Committee presents the following report:

MEETINGS OF THE COMMITTEE

2. The Committee has met four times during the year, with an attendance of 95%.

Approved.

ANNUAL MEETING, 1944

3. It will be recalled that the scientific sessions of the Montreal meeting in 1943 were cancelled as a war measure. After long and careful deliberation it was deemed advisable to resume the scientific sessions at the Toronto meeting in 1944. Judging by the attendance—1,567—the second highest in our history, and the comments to be heard throughout the week, wide-spread approval was accorded the decision of the Association to hold a full scale convention. Council will no doubt desire to express its deep sense of appreciation to our President, Dr. Harris McPhedran, the Committee on Arrangements, and the Central Program Committee under the Chairmanship of Dr. Duncan Graham, for having provided a week of activities, scientific and otherwise, which proved to be so attractive to such a large number.

4. Although formal entertainment was not emphasized, there were 141 ladies present, many of whom expressed their appreciation of the delightful hospitality arranged for them by Mrs. McPhedran and her associates on the Ladies' Committee.

Approved.

ANNUAL MEETING, 1945

5. At the annual meeting of 1944, General Council accepted an invitation to meet in Montreal in 1945 under

the Chairmanship of our President-Elect, Dr. Léon Gérin-Lajoie. Due to the fact that our country was engaged in its sixth year of war with more than 4,000 of our colleagues in the Armed Services, and, further, having regard to the restrictions placed upon travel and hotel accommodation by war conditions, your Executive Committee was faced with a major decision: Should we have a full scale meeting in 1945, or should the Montreal meeting, as in 1943, be a business meeting only?

6. Recommendations were made to your committee by a few persons that the scientific meeting should be cancelled, particularly having in mind that our neighbour Association to the South, the American Medical Association, had cancelled its annual meeting. However, having assessed all the facts and the arguments, pro and con, your Committee decided that the Montreal convention should be held as planned and include both business and scientific sessions.

7. The Central Program Committee ably assisted by the Montreal Program Committee under the joint Chairmanship of Dr. J. C. Meakins and Dr. Edmond Dubé, has prepared a scientific program of distinct merit. The local Committee on Arrangements, under the Chairmanship of Dr. Léon Gérin-Lajoie, has been unceasing in its endeavours to provide housing accommodation and other requirements. To all who have laboured so earnestly during the year to prepare for this convention, Council will desire to express its deep sense of gratitude.

Approved.

ANNUAL MEETING, 1946

8. Your Committee has received an invitation from the British Columbia Division to meet in Vancouver in 1946. This invitation will be before Council for consideration.

Approved.

ANNUAL MEETINGS OF DIVISIONS

9. The Ontario Division held its sixty-fifth annual meeting in Toronto during the week of May 21st.

10. The four Western Divisions are planning to hold their meetings in sequence in September; and the three Eastern Divisions which normally meet in July, have postponed their meetings until October. The Quebec Division will be conscious of this kind gesture on the part of their maritime colleagues who felt that holding their meetings immediately following the Montreal meeting would militate against the attendance from the East to the latter.

11. Teams of speakers consisting of the President, three scientific speakers and the General Secretary plan to attend the Eastern and Western meetings. As this report is being written, there is much reason to hope that when the Divisions meet this year victory in the European war will have been achieved.

Stop Press. It has.

Approved.

SENIOR MEMBERS

12. In accordance with the provision of Chapter 2, Section 3 of the By-Laws, the following Senior Members were elected by your Executive Committee at a regular meeting of the Committee held in Ottawa on March 4 and 5, 1945:

Dr. Robert Beauchamp Boucher, Vancouver
Dr. Thomas Robert Ross, Drumheller
Dr. John Alexander Valens, Saskatoon
Dr. John Silas Poole, Neepawa
Dr. Arthur Leslie Danard, Owen Sound
Dr. Joseph Albert LeSage, Montreal
Dr. Charles Fenwick Wylde, Montreal
Dr. John Francis Teed, Dorchester
Dr. Welton Havelock Robbins, New Glasgow
Dr. James Edward Fleming, Stanley Bridge

These members have been invited to be present at the Annual General Meeting on the evening of Wednesday, June 13th, to receive their badges and certificates.

Approved.

MEMBERSHIP

13. The following is a comparative statement of membership for the years 1944 and 1945.

Province	Paid 1944	Paid 1945	Unpaid in 1945 (at time of going to press)
British Columbia	380	425	71
Alberta	550	550	..
Saskatchewan	293	292	35
Manitoba	286	375	58
Ontario	2,407	2,360	295
Quebec	515	682	44
New Brunswick	230	233	..
Nova Scotia	220	248	32
Prince Edward Island ..	36	38	12
	4,917	5,203	547

Adding 3,900 members who as Medical Officers in His Majesty's Service are not required to pay annual fees it will be observed that our total membership in 1945 stands at 9,650.

Both in paid membership and in total membership this is an all time record.

Approved.

THE C.M.A. AND THE C.M.P.A.B.

14. Your five representatives, Doctors Frank S. Patch, A. E. Archer, Léon Gérin-Lajoie, T. H. Leggett and T. C. Routley, have continued to act as members of the Canadian Medical Procurement and Assignment Board during the past year. In addition, Dr. Harris McPhedran was appointed to the Board vice Dr. Frank S. Patch who as President of the Royal College of Physicians and Surgeons of Canada was selected to represent that body.

15. There were also added to the Board Dr. John Fraser representing the Medical Schools of Canada and Dr. George Stephens representing the Canadian Hospital Council.

RETURN TO CIVIL LIFE

(a) POST-GRADUATE STUDIES

16. With the appointment of Doctors Patch, Fraser and Stephens, the Royal College of Physicians and Surgeons of Canada, the Medical Schools and the Hospitals of Canada became officially and closely integrated in the work of the Board, having particularly in view the necessity of planning refresher courses and post-graduate instruction for upwards of 4,000 Medical Officers. The three gentlemen named headed up a sub-committee of the Board which has done an enormous amount of work during the year in association with the bodies which they respectively represent.

17. The Committee has arranged for publication in booklet form of a syllabus of refresher and post-graduate opportunities which has been compiled for the benefit of demobilized Medical Officers. The booklet is being sent to all Canadian Medical Officers in His Majesty's Service in order that they may acquaint themselves with what is available and under what terms and conditions, as set down by Act of Parliament.

18. The Board is deeply sensible of the necessity of doing everything possible to facilitate the return of our military colleagues to civilian life and recognizes the great importance, both to the doctors and to the public, of endeavouring to provide such educational opportunities as these returning colleagues feel that they require.

(b) PLACEMENT

ESTABLISHMENT AND RE-ESTABLISHMENT

19. The absorption of more than 4,000 doctors into the stream of civil life is a matter of great importance not only to each individual doctor but to the nation.

At least 50% of these 4,000 doctors have never been engaged in private practice and have not former locations awaiting them.

Of the other 50% many have practices to which they eagerly await the opportunity to return, but many others will probably proceed to new fields.

The Board and its nine Divisional Advisory Committees recognizes this situation as one demanding most sympathetic consideration and co-operation.

20. General Council is familiar with the fact that, under the Board's direction, a National Health Survey has been conducted and the report published by the Government in book form. Since the survey was completed an attempt has been made by all the Divisions to keep the medical aspects of the report up to date. By card index registers the names of all Canadian doctors both within and without the Services, have been compiled, i.e., where they are, the areas now without doctors and the possibilities of practice in every part of Canada. All of this information will be available in the post-war period, both centrally and in the Divisions. The Board has been officially invited by the Department of Veterans' Affairs to act as medical adviser to the Department in respect of rehabilitation and placement and having been assured by the nine Divisional Advisory Committees of their enthusiastic willingness to do all in their power to assist, the Board has gladly accepted the invitation. Demobilized Medical Officers upon making application to Veterans' Affairs or Divisional Advisory Committee Offices will be furnished with particulars regarding opportunities for studying and locations for work.

MEDICAL ENLISTMENTS

21. Medical enlistments as of March 31st, 1945, totalled 4,471. Of this number 571 have been struck off strength due to death or retirement.

The breakdown is as follows:—

Navy	Total intake	453	
	Deaths, retirements ...	45	
	Present strength		408
Army	Total intake	3,216	
	Deaths, retirements ...	439	
	Present strength		2,777
R.C.A.F.	Total intake	802	
	Deaths, retirements ...	87	
	Present strength		715
Total present strength			3,900

22. During the past three years the great majority of medical enlistments have come from the new graduates. The plan which made provision for physically fit medical students to enlist as private soldiers for a period of 24 months prior to receiving Commissions, has been a success. The vast majority of the fit men and women undergraduates in the several medical schools who qualified for appointments enlisted. A heavy burden was laid upon the teachers who undertook to compress three academic years into two, but the plan went forward and it worked well. It was agreed that, as of January 1, 1945, it would be discontinued, that is there would be no new enlistments, but the accelerated program continues with respect to those enlisted as private soldiers prior to that date. As of the same date, internship has been extended from eight months to twelve months, the Board believing that the war situation warranted these two major changes.

EXIT PERMITS

23. With the unanimous approval of the Divisional Advisory Committees the Board set down as a principle that exit permits should not be granted to Canadian doctors who are capable of performing any useful service to Canada either within or without the military services. In a number of instances, (but not a great number) pressure was put upon the Board to recede from that position. However, the variety of reasons or excuses put forward for special consideration practically always fell upon deaf ears and very few Canadian doctors have been lost to Canada's war effort by reason of migration to other lands.

SECONDMENT TO RURAL AREAS

24. By virtue of an agreement entered into between the Federal and Provincial Governments, the Canadian Medical Procurement and Assignment Board was authorized to recommend the secondment of Medical Officers to rural areas and Departments of Health which in the opinion of the Board, the Provincial Department of Health and the local Divisional Advisory Committee, were badly in need of medical services. The Medical Officers so seconded were to hold the rank of Major (or its equivalent) to receive full service pay and allowances, necessary office facilities, transportation and drugs. In other words, their income was net, save cost of house rent. Any money collected by the serving Medical Officers was to be turned over to the local municipality.

25. To date 36 Medical Officers have been seconded to these posts. As an answer to an emergency situation, the plan has been quite successful. The co-operation of the Governmental authorities and the Medical Services bridged what might have been a serious situation for many areas. Furthermore, with the launching of this plan, public criticism which had been levelled against the profession for its inability to provide needed medical care to rural areas largely faded out.

Received for information.

SOLDIERS' DEPENDENTS BOARD OF TRUSTEES

26. It will be recalled that last year your Committee reported that it had made five recommendations to the Soldiers' Dependents Board of Trustees as to the manner in which medical accounts should be treated by the Board. These recommendations were as follows:

1. That the Soldiers' Dependents Board of Trustees be requested to use the medical tariffs of the Provincial Divisions of the Canadian Medical Association.
2. That medical men be used as assessing officers, such personnel to be appointed by the Provincial Medical Associations.
3. That cheques in payment of doctors' accounts be forwarded directly to the doctor and not to the patient.
4. That, when an account is not paid in full, explanation be made to the doctor and the patient as to why it is not paid in full.
5. That it would be desirable that there be a doctor appointed to the Central Board, whose opinion would be of value in dealing with medical policy.

27. Considerable negotiations have ensued between the Board and your Committee during the year. A Sub-Committee is now sitting with the Board and it is hoped that, when Council meets, the Committee will be in a position to outline a definite plan of co-operation which will be mutually acceptable.

Approved.

The Sub-Committee reported progress along with suggestions of tariff and regulations which were studied by Council and sent back to the

Committee for approval by the Board. As soon as arrangements are definitely concluded a statement will appear in the *Journal*.

TWO NEW DEPARTMENTS OF GOVERNMENT

28. As announced at our last annual meeting, the Department of Pensions and National Health has been replaced by two new Departments, namely, the Department of National Health and Welfare of which Dr. G. B. Chisholm has been appointed Deputy Minister; and the Department of Veterans' Affairs of which Dr. W. P. Warner has been appointed Director General of Treatment Services. These two gentlemen have been invited to take seats at this meeting of General Council.

29. The Committee on Constitution and By-Laws is preparing an amendment to the Constitution and By-Laws in conformity with the reorganization which has taken place.

Approved.

ADVISORY COMMITTEE TO THE DEPARTMENT OF NATIONAL HEALTH AND WELFARE

30. On the invitation of the Deputy Minister of National Health and Welfare, Dr. G. B. Chisholm, your Executive Committee has appointed a Medical Advisory Committee to the Department, to which Committee the Department may submit from time to time, questions upon which it wishes to be advised. The personnel of the Committee is as follows:

Dr. Harris McPhedran, Toronto
Dr. F. G. McGuinness, Winnipeg
Dr. C. J. Venoit, Bathurst
Dr. George Stephens, Montreal
Dr. J. C. Meakins, Montreal
Dr. R. I. Harris, Toronto
Dr. T. C. Routley, Toronto

NATIONAL PHYSICAL FITNESS COUNCIL

31. Dr. G. B. Chisholm, Deputy Minister of National Health, appearing before your Executive Committee, stated that the National Council on Physical Fitness is an organization made up of representatives of all the provinces, working under the direction of the Director of Physical Fitness of the Department of National Health and Welfare. The work of the Physical Fitness Council is done almost entirely provincially. It would seem desirable that there be set up in each province a Medical Advisory Committee to the Provincial Physical Fitness Committee in order that the medical profession might be in a position to advise provincial authorities on how best to obtain physical fitness.

32. Your Executive Committee agreed with the suggestion put forward by Dr. Chisholm and has recommended to the Divisions that they be prepared on request to set up Divisional Physical Fitness Committees.

Approved.

FINANCIAL RELATIONS WITH DIVISIONS

33. Representations were made to your Executive Committee by the Ontario Division that, when the Canadian Medical Association meets in Ontario, the Division receives no revenue from its annual meeting that year, thus impairing its financial position. The delegates from Ontario felt that the question of the division of fees between the parent body and the Divisions should be carefully examined. With this end in view, a sub-committee was appointed which brought in the following recommendations which were approved by your Executive Committee:

1. That, for 1944, the C.M.A. shall grant to each Division an abatement of one dollar (\$1.00) per member, partial fees ($\frac{1}{2}$ year) to be dealt with in the same proportion.

2. That for 1945, the portion of the annual fee received by the C.M.A. shall be seven (\$7.00) dollars, partial fees being dealt with in the same proportion.

3. That Junior Memberships are not included in these arrangements.

34. It has been suggested to your Executive Committee that, following the war, the Association should expand its activities in a number of directions. Such expansion is dependent upon the ability to secure personnel and funds. No doubt it will be the desire of General Council to set the annual fee from time to time at a figure which is adequate to meet the financial needs of the Association, bearing in mind also that the Divisions must collect an annual fee adequate to cover their provincial activities.

Following discussion of this section of the report, it was agreed that a small sub-committee be appointed to study the whole financial structure of the Association and bring in recommendations to the October meeting of the Executive Committee.

SPECIAL LECTURES

35. The Committee on Awards, Lectures and Scholarships reports that the Lister Lecture falls due this year and the Committee feels singularly fortunate in having secured Dr. Owen H. Wangenstein, Chief of the Department of Surgery, University of Minnesota, Minneapolis, as the lecturer.

36. The Blackader Lecture falls due in 1946 and the Osler Lecture in 1947.

Approved.

AFFILIATED MEDICAL SOCIETIES

37. Application for affiliation with the Association was received from No. 24 Canadian General Hospital Overseas which application your Committee was pleased to approve. We now have the following affiliated medical societies overseas:

- 1st Canadian Division Medical Society Overseas
- 2nd Canadian Division Medical Society Overseas
- 3rd Canadian Division Medical Society Overseas
- 5th Canadian Armoured Division Medical Society Overseas
- 1st Canadian Army Troops Medical Society Overseas
- Gander Medical and Dental Society, Gander, Nfld.
- 1st Canadian Corps Troops Medical Society Overseas
- 4th Canadian Armoured Division Medical Society Overseas
- No. 24 Canadian General Hospital Overseas

In addition we have the following affiliated military medical societies in Canada:

- Debert Military Medical Society, Debert, N.S.
- Camp Sussex Medical Society, Camp Sussex, N.B.

Approved.

38. Invitations have been extended to the affiliated societies who find it convenient to do so to send delegates to this meeting of General Council.

Approved.

General Council was very pleased to welcome to its sessions Major W. T. Noonan, representing the 24th General Hospital Medical Society Over-

seas, and Major H. A. Procter, representing the 1st Canadian Army Troops Medical Society Overseas.

MEDICAL TRAINING CENTRE AT CAMP BORDEN

39. Dr. F. A. Brockenshire, Chairman of the committee appointed for the purpose, has reported to your Committee that funds which were authorized to the extent of \$2,500 have been expended in providing furnishings and equipment for the Medical Officers Training Centre at the R.C.A.M.C. Training School at Camp Borden. These funds were provided as follows:

Nova Scotia Division	\$ 200.00
Ontario Division	767.00
Canadian Medical Association	1,533.00

40. The furnishings have all been labelled indicating ownership as vested in the Associations, it being understood that, on the completion of hostilities, the furniture will be at the disposal of the Associations.

Approved.

INCOME TAX

41. At the request of the British Columbia Division, the General Secretary appeared before the Royal Commission on Taxation of Annuities and Family Corporations in Ottawa, on February 22nd and presented a brief prepared by the Division outlining the desirability of doctors having 10% of their net income declared tax free for the purpose of purchasing annuities. The action of the General Secretary in this instance was approved by your Executive Committee. At time of preparation of this report, the findings of the Royal Commission are not available.

Approved.

HEALTH INSURANCE

42. Four years have elapsed since the Deputy Minister of Pensions and National Health informed General Council at the Winnipeg meeting in 1941, that a Bill of National Health Insurance had been prepared and would likely be presented on the floor of the House of Commons in the not too distant future. General Council is familiar with what has transpired since that time. An Advisory Committee was appointed to draft the legislation. A special committee of the House of Commons was set up to study the proposed legislation. A special committee of this Association was appointed to see that the views of the organized medical profession of Canada were placed before the Drafting Committee and the special committee of the House of Commons. The Report of the Committee on Economics will no doubt deal with this important matter in detail. The Committee is deserving of the special thanks of General Council for the enormous amount of work it has done on behalf of the profession.

43. Now that a Federal election is to be held it is difficult to forecast what will become of the draft bill presented by the Special Committee on Social Security. It may be said, however, that the three major parties contesting the election are all committed to the principle of health insurance and General Council may reasonably anticipate that, no matter what may be the complexion of the new Parliament, health insurance legislation is most likely to appear on the agenda of the party in power.

Approved.

CONCLUSION

44. An examination of the reports presented to General Council will disclose that your Committees scattered across Canada have continued throughout the year to

render notable service. To all who have assisted in carrying on the work of the Association General Council will no doubt desire to extend sincerest thanks.

All of which is respectfully submitted.

A. E. ARCHER,
Chairman,

T. C. ROUTLEY,
General Secretary.

Approved.

REPORT OF THE POST-WAR
REHABILITATION COMMITTEE

Mr. Chairman and Members of General Council:—

45. The question of Post-discharge Rehabilitation of Medical Officers of the Armed Forces is now being actively canvassed by the Department of Veterans' Affairs and the Canadian Medical Procurement and Assignment Board.

46. Your committee has drawn certain matters to the attention of these bodies, and has been assured that the educational program is well advanced. The question of bringing the Health Survey up to date, to assist in the placement of medical officers, is also being considered by them, but would appear to need more active attention in the near future.

47. We are informed that changes in the regulations are being discussed which will allow of a more liberal interpretation of the 15 month period which may elapse before an officer begins his post-war educational work. This increased delay would allow the officer to resume practice in his old location and then, after a reasonable period, to decide upon the form of post-graduate instruction which would be most desirable for him.

48. The question of taking post-graduate work outside the country is still under discussion. The whole matter is complicated by the uncertainty as to whether allied countries, faced with similar problems of rehabilitation, will be able to accommodate our men. A more simple ruling should be put on the books which would automatically allow the officer to take a course abroad if he were able to make private arrangements which would meet with the approval of some local authority, rather than requiring the approval of the Minister. Many opportunities for getting these posts are of a semi-emergency character and any long delay in obtaining approval might allow the opportunity to be lost.

49. In the distribution of government and civilian professional appointments, the Association should not lose sight of the fact that all medical officers enlisted for General Service, and their lack of overseas service was a great disappointment to many who through no fault of their own, were kept in Canada and Newfoundland. The rights of those presently overseas should be fully safeguarded, but some recognition should be given to the claims of those who did not see foreign service, especially as it would appear that they are not likely to be demobilized at an earlier date than those who are now overseas.

50. There are many other points in the rehabilitation picture which require consideration. The problem of obtaining office space and equipment, telephone service, motor cars, etc., will become increasingly important as these items are in short supply. These points should be drawn to the attention of local medical societies for their study and any possible action.

All of which is respectfully submitted.

D. S. LEWIS,
Chairman.

Approved.

REPORT OF THE HONORARY TREASURER

Mr. Chairman and Members of General Council:—

51. I have the honour to present the report of the Honorary Treasurer for 1944. Certified financial statements from Messrs. McDonald, Currie & Company, Chartered Accountants, Montreal, are attached. Mr. Dignam's audited statements of the Toronto office accounts have been incorporated in the statement.

52. It is gratifying to report that the financial operations of the Association in the year under review have been most successful. In spite of increased expenditures due to increased printing costs, the Association's activities in the field of Health Insurance, a substantial gift to the R.C.A.M.C. Training Centre at Camp Borden, and a rebate of a portion of the membership fees to the Divisions, the excess of revenue over expenditures amounted to \$14,277.26. This was due in large measure to two factors. After the lapse of one year, an annual meeting was held, and secondly, the receipts from *Journal* advertising have been much larger than before.

53. At the end of the financial year, the surplus funds of the Association had risen to \$150,171.47.

INVESTMENTS

54. A new investment of \$15,000.00 of the Association's surplus funds was made in the 6th and 7th Victory Loans.

55. On the advice of the Royal Trust Company, our financial advisers, certain securities were sold and reinvested.

GENERAL FUND

\$43,100.00 Dominion of Canada War Loan and 1st, 2nd and 3rd Victory Loan bonds were sold at a profit of \$1,608.97 and replaced by \$44,500.00 Dominion of Canada 6th Victory Loan bonds, 3%, due 1960.

\$4,000.00 Province of Saskatchewan 4% and 4½% bonds were sold with a capital profit of \$10.32 and replaced by 7th Victory Loan bonds, 3%, due 1962.

\$500.00 City of Montreal 6% bonds were redeemed at par and replaced by 6th Victory Loan bonds.

The reorganization of the finances of the City

of Montreal required the surrender of their bonds for replacement with lower interest bearing issues. The total amount thus exchanged was \$8,000.00.

TRUST FUNDS

Similarly, certain bond issues which could be sold at a profit were sold and the proceeds reinvested in more recent Victory Loan issues. Notably, \$12,000.00 in the Osler Scholarship Fund were sold at a profit of \$519.73.

Temporary investment of accrued revenue in several Trust Funds was made in the 7th Victory Loan.

MEDICAL WAR RELIEF FUND

56. The sum of \$1,508.00 was forwarded during the year to the British Medical Association. This brought the total contributions from Canada since the inception of the fund to \$11,405.51.

All of which is respectfully submitted.

F. S. PATCH,
Honorary Treasurer.

57. STATEMENT No. 1

BALANCE SHEET AS AT 31st DECEMBER, 1944

ASSETS		LIABILITIES	
Cash on Hand.....	\$ 25.00	Accounts Payable.....	\$ 15.36
Cash in Bank:		Revenue Received in Advance:	
Montreal.....	\$11,747.10	Journal Prepaid.....	\$ 2.50
Toronto:		Reprints Prepaid.....	6.48
General Funds..	838.82	Advertising Prepaid.....	25.50
Annual Meeting..	1,354.32	Prepaid Membership Fees,	
	13,940.24	1945.....	343.00
	\$13,965.24	Prepaid Subscriptions, 1945...	1,028.38
ACCOUNTS RECEIVABLE:			1,405.86
Advertising.....	\$1,101.14	Trusts as per Schedule No. 2.....	38,606.38
Journal.....	61.25	Special Grants, as per Schedule No. 3.....	16,335.23
Reprints.....	286.92		
Reprints—Special.....	73.94	SURPLUS ACCOUNT:	
Trust Funds and Special Grants	50.12	Balance at Credit 31st Decem-	
Trans Canada Airlines.....	545.57	ber, 1943.....	\$134,339.22
	2,118.94	Add: Profit on Sale of Invest-	
INVESTMENTS:		ments.....	1,554.99
At Book Value, Schedule No. 1	\$133,521.17	Excess of Revenue over Ex-	
Accrued Interest.....	844.84	pended for the Year.....	14,277.26
	134,366.01		150,171.47
Trust Funds—as per Schedule No. 2.....	38,606.38		
Special Grant Funds—as per Schedule No. 3.	16,335.23		
Furniture and Equipment—Less Depreciation	1,142.50		
	\$206,534.30		\$206,534.30

58. AUDITORS' REPORT

Montreal, 26th February, 1945.

DR. F. S. PATCH,
Honorary Treasurer,
Canadian Medical Association,
3640 University Street, Montreal.

We have examined the books and accounts of the Canadian Medical Association for the year ended 31st December, 1944, and have obtained all the information and explanations which we have required.

The receipts and disbursements of the General Secretary in Toronto, as shown on a statement certified to by Mr. Dignam as Auditor, have been incorporated in the books.

We verified the cash on hand and in bank and received confirmation of the securities which are held in safekeeping for Investment Account and for Trusts.

We found the books and accounts in good order and were given every assistance in the carrying out of our audit.

Subject to the foregoing remarks, we report that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Association's affairs, according to the best of our information and the explanations given to us and as shown by the books of the Association.

(Signed) McDONALD, CURRIE & Co.,
Chartered Accountants.

59. STATEMENT No. 2

STATEMENT OF REVENUE AND EXPENDITURE FOR YEAR ENDED 31st DECEMBER, 1944

REVENUE		EXPENDITURE	
Membership Fees.....	\$37,470.40	Journal, Printing, Etc.:	
Subscriptions.....	6,988.51	Agents' Commissions.....	\$ 6,050.75
Advertising.....	50,275.52	Illustrations.....	762.28
Sundry Journal Sales.....	356.50	Printing.....	35,494.02
Special Reprints.....	556.09		\$42,307.05
Annual Meeting, as per Statement No. 3....	8,244.74	Salaries:	
Bad Debts Recovered.....	7.36	General Secretary's Office, In-	
Sundry Sales:		cluding Expense Allowance..	\$17,000.24
Medical Economics.....	\$1.50	Montreal Office, Editorial, in-	
History of Canadian Medical		cluding Honoraria to Division-	
Association.....	1.00	al Representatives and Honor-	
	2.50	aria for Abstracts and Special	
Revenue from Investment and Bank Interest	4,045.63	Contributions.....	14,941.38
		Cost of Living Bonus.....	219.56
		Unemployment Insurance.....	75.90
			32,237.08
		Travelling:	
		Executive Committee.....	\$5,175.48
		Transcontinental Tour—Presi-	
		dent and General Secretary..	1,283.89
		Post-Graduate Teams.....	1,125.66
		Medical Secretary's Conference.	417.67
		General Secretary.....	306.95
		Sundry.....	85.00
			8,394.65
		Health Insurance:	
		Salaries.....	\$2,473.29
		Travelling.....	1,039.29
		Acturial Consultations.....	888.41
		Legal Consultations.....	150.00
		General.....	304.54
			4,855.53
		R.C.A.M.C. Training Centre Fund.....	1,531.09
		Administration Expenses:	
		Audit Fees.....	\$ 375.00
		Depreciation of Furniture and	
		Fixtures.....	126.95
		Discount and Exchange.....	388.02
		General Expenses.....	558.54
		Postage.....	1,263.47
		Royal Trust Company, Trustee	
		Fees.....	161.45
		Stationery and Printing.....	747.73
		Telephone and Telegraph.....	723.43
			4,344.59
		Excess of Revenue over Expenditure for the	
		Year—transferred to Surplus Account.....	14,277.26
			\$107,947.2
			\$107,947.25

60. STATEMENT No. 3

ANNUAL MEETING IN TORONTO, MAY, 1944, STATEMENT OF REVENUE AND EXPENDITURE

REVENUE		EXPENDITURE	
Sale of Exhibit Space.....	\$11,830.00	Travelling Expenses.....	\$ 167.98
Announcement Space in Programme	125.00	Badges:	
Bank Interest and Premium on		Past President.....	\$ 56.25
United States Funds.....	108.42	Senior Members.....	67.54
		Registration.....	162.00
			285.79
		Printing:	
		General Meeting.....	\$346.66
		Signs.....	241.40
		Supplement.....	603.37
			1,691.43
		Royal York Hotel.....	856.60
		Orchestra and Flowers, General	
		Meeting.....	232.50
		Ladies Committee Expenses.....	177.75
		Rental of View Boxes and Lanterns	146.00
		Canadian Corps of Commissionaires	95.60
		Staff Expenses at Meeting.....	78.81
		Clerical Assistance.....	44.00
		Rental of Typewriters.....	6.00
		Office Supplies.....	3.80
		Insurance Premium on Golf Cup..	5.15
		Sundries.....	27.27
			3,818.68
		Excess of Revenue over Expenditure.....	\$8,244.74
	<u>\$12,063.42</u>		

SCHEDULE No. 1

SCHEDULE OF INVESTMENTS AS AT 31st DECEMBER, 1944

61. GENERAL FUND

	Par Value	Book Value
Dominion of Canada 3/57.....	\$21,000.00	\$21,000.00
Dominion of Canada 3/59.....	10,000.00	10,000.00
Dominion of Canada 3/60.....	55,000.00	55,000.00
Dominion of Canada 3/62.....	9,000.00	9,000.00
Province of Alberta 4 1/2/42.....	5,000.00	4,812.50
Jewish Hospital Campaign Committee Incorporated of Montreal 5/46.....	5,000.00	4,950.00
City of Montreal 1956-4 1/2/46-3 1/2 thereafter.....	1,000.00	975.00
City of Montreal 1958-4 1/2/47-3 1/2 thereafter.....	2,000.00	1,856.20
City of Montreal 1970-5/54-3 3/4 thereafter.....	2,000.00	2,020.00
City of Montreal 1971-5/54-3 3/4 thereafter.....	3,000.00	3,030.00
Province of Nova Scotia 3/52.....	10,000.00	9,900.00
Province of Ontario 3/49.....	1,000.00	995.00
Province of Ontario 3/50.....	9,000.00	8,982.47
Ritz-Carlton Hotel Co. 1st Mortgage 2 1/2/73 and \$130.00 Non-Interest bearing Cert. of Indebtedness.....	1,000.00	1,000.00
	<u>\$134,000.00</u>	<u>\$133,521.17</u>

Approximate Market Value \$133,600.00

TRUST FUNDS

62. Lister Club Fund:

Dominion of Canada 3/57.....	\$ 800.00	\$1,800.00
Dominion of Canada 3/60.....	5,500.00	5,500.00
Dominion of Canada 3/62.....	400.00	400.00
Province of Quebec 4½/63.....	1,000.00	985.00
	<u>\$7,700.00</u>	<u>\$7,685.00</u>

Approximate Market Value \$7,631.00

63. Osler Memorial Fund:

Province of Alberta 4½/42.....	\$3,000.00	\$2,887.50
Dominion of Canada 3/60.....	2,600.00	2,600.00
Dominion of Canada 3/57.....	100.00	100.00
Dominion of Canada 3/62.....	150.00	150.00
	<u>\$5,850.00</u>	<u>\$5,737.50</u>

Approximate Market Value \$5,732.50

64. Osler Scholarship Fund:

Dominion of Canada 3/57.....	\$ 900.00	\$ 900.00
Dominion of Canada 3/58.....	2,000.00	1,992.49
Dominion of Canada 3/60.....	12,400.00	12,400.00
Dominion of Canada 3/62.....	550.00	550.00
	<u>\$15,850.00</u>	<u>\$15,842.49</u>

Approximate Market Value \$15,720.50

65. Blackader Lecture Fund:

Province of Alberta 4½/56.....	\$1,000.00	\$1,000.30
Dominion of Canada 3/57.....	400.00	400.00
Dominion of Canada 3/58.....	3,000.00	2,988.73
Dominion of Canada 3/60.....	700.00	700.00
Dominion of Canada 3/62.....	300.00	300.00
Dominion of Canada 4½/57.....	200.00	204.00
The City of Drummondville 4/56.....	500.00	517.50
The City of Drummondville 4/62.....	100.00	103.50
	<u>\$6,200.00</u>	<u>\$6,214.03</u>

Approximate Market Value \$6,152.00

66. Frederick Newton Gisborne Starr Memorial Award:

Dominion of Canada 3/59.....	<u>\$1,000.00</u>	<u>\$1,000.00</u>
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Approximate Market Value \$1,000.00

SPECIAL GRANT FUNDS

67. Cancer Fund:

Dominion of Canada 3/60.....	<u>\$10,100.00</u>	<u>\$10,100.00</u>
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Approximate Market Value \$9,999.00

NOTE.—The Association is holding uncashed coupons on Province of Alberta Bonds for the General Fund, Osler Memorial Fund and Blackader Lecture Fund.

68. SCHEDULE No. 2

SCHEDULE OF TRUSTS AND TRUST FUNDS AS AT 31ST DECEMBER, 1944

		Trust Funds	Trusts
Lister Club Fund:			
Capital.....	\$6,585.00		
Accumulated Revenue—31st December, 1943.....	\$1,009.76		
Revenue for Year.....	230.04		
	1,239.80		\$ 7,824.80
Represented by—			
Investments as per Schedule No. 1.....	\$7,685.00		
Cash in Bank.....	139.80		
	\$ 7,824.80		
Osler Memorial Fund:			
Capital.....	\$5,637.50		
Accumulated Revenue—31st December, 1943.....	\$93.63		
Revenue for Year.....	74.22		
	\$ 167.85		
Represented by—			5,805.35
Investments as per Schedule No. 1.....	\$5,737.50		
Cash in Bank.....	67.85		
	5,805.35		
Osler Scholarship Fund:			
Capital.....	\$12,968.41		
Accumulated Revenue—31st December, 1943.....	\$3,117.42		
Revenue for Year.....	554.74		
	3,672.16		
Represented by—			16,640.57
Investments as per Schedule No. 1.....	\$15,842.49		
Account Receivable.....	525.92		
Cash in Bank.....	272.16		
	16,640.57		
Blackader Lecture Fund:			
Capital.....	\$5,478.87		
Accumulated Revenue—31st December, 1943.....	\$689.15		
Revenue for Year.....	152.60		
	\$841.75		
Represented by—			6,320.62
Investments as per Schedule No. 1.....	\$6,214.03		
Accounts Receivable.....	15.14		
Cash in Bank.....	91.45		
	6,320.62		
Blackader Library of the Hospital Service Department:			
Balance—31st December, 1943.....	\$883.72		
Bank Interest.....	4.25		
Deduct—Expenses:	\$887.97		
Books and Literature.....	\$68.79		
			819.18
Represented by—			
Cash in Bank.....	\$823.18		
Less—Accounts Payable.....	4.00		
	819.18		
Canadian Radiological Society Library Fund:			
Balance—31st December, 1943.....	\$205.60		
Bank Interest.....	.99		
	206.59		
Deduct—Expenditure for Books.....	7.20		
			199.39
Represented by—			
Cash in Bank.....	199.39		
R.C.A.M.C. Training Centre:			
Balance—31st December, 1943.....	\$200.25		
Bank Interest.....	1.66		
	\$201.91		
Deduct—Furniture for R.C.A.M.C. Training Centre, Camp Borden	\$201.75		
Transfer to General Account.....	.16		
	201.91		
Frederick Newton Gisborne Starr Award:			
Capital.....	\$1,000.00		
Deficit for Year.....	3.53		
			996.47
Represented by—			
Investments as per Schedule No. 1.....	\$1,000.00		
Cash in Bank.....	6.47		
	\$1,006.47		
Less—Account Payable.....	10.00		
	996.47		
		\$38,606.38	\$38,606.38

SCHEDULE No. 3

		Special Grant Funds	Special Grants
69. Department of Hospital Service:			
Balance at Credit, 31st December, 1943.....	\$ 1,514.27		
Grant from Sun Life Assurance Company of Canada.....	11,000.00		
Bank Interest.....	6.96		
	<u>\$12,521.23</u>		
<i>Deduct</i> —Cost of Living Bonus.....	\$ 33.12		
Salaries (including expense allowance).....	9,369.84		
Travelling Expense.....	401.92		
Printing, Stationery, Literature and Office Supplies.....	253.92		
Pamphlet—Planning and Construction of the General Hospital.....	474.00		
Postage.....	129.47		
Telephone and Telegrams.....	9.66		
General Expense.....	21.08		
Unemployment Insurance.....	13.78		
Depreciation of Equipment.....	60.43		
	<u>10,767.22</u>		
Balance at Credit, 31st December, 1944.....			\$1,754.01
Represented by—			
Cash in Bank.....	\$1,256.27		
<i>Less</i> —Accounts Payable.....	46.12		
	<u>\$1,210.15</u>		
Equipment— <i>Less</i> Depreciation.....	543.86		
	<u>\$1,754.01</u>		
(Revenue \$11,006.96, Expenditure \$10,767.22, Excess Revenue for year \$239.74.)			
70. Department of Publicity and Health Education:			
Balance at Credit, 31st December, 1943.....	\$1,902.22		
Bank Interest.....	6.70		
	<u>\$1,908.92</u>		
<i>Deduct</i> —Stationery and Printing.....	\$681.58		
Depreciation of Equipment.....	22.04		
	<u>\$703.62</u>		
Balance at Credit, 31st December, 1944.....			1,205.30
Represented by—			
Cash in Bank.....	\$1,006.91		
Equipment, <i>Less</i> Depreciation.....	198.39		
	<u>\$1,205.30</u>		
71. Cancer Fund:			
Balance at Credit, 31st December, 1943.....	\$13,422.02		
Grant from Board of Trustees of King George V Jubilee Cancer Fund for Canada.....	7,000.00		
Bank Interest.....	33.93		
Profit on Sale of Dominion of Canada Bonds.....	99.86		
Bond Interest.....	326.75		
	<u>\$20,882.56</u>		
<i>Deduct</i> —Canadian Society for Control of Cancer.....	\$7,000.00		
Travelling Expenses.....	483.78		
Trustee's Fees.....	13.07		
Stationery and Printing.....	52.92		
	<u>7,549.77</u>		
Balance at Credit, 31st December, 1944.....			13,332.79
Represented by—			
Cash in Bank.....	\$1,732.93		
Accounts Receivable.....	2,500.00		
Investments as per Schedule No. 1.....	10,100.00		
	<u>\$14,332.93</u>		
<i>Less</i> —Accounts Payable.....	1,000.14		
	<u>\$13,332.79</u>		
(Revenue \$7,460.54, Expenditure \$7,549.77, Excess Expenditure for year \$89.23.)			
72. Committee on Nutrition:			
Balance at Credit, 31st December, 1943.....	\$42.71		
Bank Interest.....	.42		
	<u>43.13</u>		
Balance at Credit, 31st December, 1944.....			43.13
Represented by—			
Cash in Bank.....		43.13	
		<u>\$16,335.23</u>	<u>\$16,335.23</u>

73. STATEMENT No. 1

DEPARTMENT OF HOSPITAL SERVICE

BALANCE SHEET AS AT 31st DECEMBER, 1944

ASSETS		LIABILITIES	
Cash in Bank.....	\$1,256.27	Accounts Payable.....	\$46.12
Equipment.....	\$604.29	Surplus:	
Deduct—Depreciation for Year..	60.43	Balance at Credit, 31st December	
	543.86	1943.....	\$1,514.27
		Add—Excess of Revenue over	
		Expenditure for the Year.....	239.74
			1,754.01
	<u>\$1,800.13</u>		<u>\$1,800.13</u>

AUDITORS' REPORT

We have examined the books and accounts of the Department of Hospital Service of the Canadian Medical Association for the year ended 31st December, 1944, and we have obtained all the information and explanations which we have required.

We report that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Department's affairs, according to the best of our information and the explanations given to us and as shown by the books.

Montreal, 26th February, 1945.

(Signed) McDONALD, CURRIE & Co.,
Chartered Accountants.

STATEMENT No. 2

STATEMENT OF REVENUE AND EXPENDITURE FOR YEAR ENDED 31st DECEMBER, 1944

REVENUE		EXPENDITURE	
Grant—Sun Life Assurance Co. of Canada...	\$11,000.00	Salaries (including Expense Allowance).....	\$9,369.84
Bank Interest.....	6.96	Cost of Living Bonus.....	33.12
		Travelling Expenses.....	401.92
		Pamphlet—Planning and Construction of the	
		General Hospital.....	474.00
		Printing, Stationery, Literature and Office	
		Supplies.....	253.92
		Postage.....	129.47
		Telephone and Telegrams.....	9.66
		General Expenses.....	21.08
		Unemployment Insurance.....	13.78
		Depreciation of Equipment.....	60.43
			\$10,767.22
		Excess Of Revenue over Expenditure for the	
		Year—transferred to Surplus Account....	239.74
	<u>\$11,006.96</u>		<u>\$11,006.96</u>

STATEMENT No. 3

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR YEAR ENDED
31st DECEMBER, 1944

RECEIPTS		DISBURSEMENTS	
Balance of, Cash in Bank, 31st December, 1944	\$938.92	Accounts Payable.....	\$ 28.94
Grant—Sun Life Assurance Co.		Salaries (including Expense Allowance).....	9,369.84
of Canada.....	\$11,000.00	Cost of Living Bonus.....	33.12
Bank Interest.....	6.96	Travelling Expenses.....	401.92
		Pamphlet—Planning and Construction of the	
		General Hospital.....	474.00
Total Receipts.....	11,006.96	Printing, Stationery, Literature and Office	
		Supplies.....	238.92
		Postage.....	99.67
		Telephone and Telegrams.....	9.66
		General Expenses.....	19.76
		Unemployment Insurance.....	13.78
		Total Disbursements.....	\$10,689.61
		Balance of Cash in Bank, 31st December, 1944	1,256.27
	<u>\$11,945.88</u>		<u>\$11,945.88</u>

STATEMENT No. 1

74. CANCER FUND

BALANCE SHEET AS AT 31st DECEMBER, 1944

ASSETS		LIABILITIES	
Cash in Bank.....	\$ 1,732.93	Accounts Payable.....	\$ 1,000.14
Accounts Receivable.....	2,500.00	Surplus Account:	
Investment in Dominion of Canada War Loan Bonds (Approximate Market Value (\$9,999.00)).....	10,100.00	Balance at Credit, 31st December, 1943.....	\$13,422.02
		Deduct—Excess Expenditure for Year.....	89.23
			13,332.79
	<u>\$14,332.93</u>		<u>\$14,332.93</u>

AUDITORS' REPORT

We have examined the books and accounts of the Cancer Fund of the Canadian Medical Association for the year ended 31st December, 1944, and we have obtained all the information and explanations which we have required.

We report that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Fund's affairs, according to the best of our information and the explanations given to us and as shown by the books.

(Signed) McDONALD, CURRIE & Co.,
 Chartered Accountants.

Montreal, 26th February, 1945.

STATEMENT No. 2

STATEMENT OF REVENUE AND EXPENDITURE FOR YEAR ENDED 31st DECEMBER, 1944

REVENUE		EXPENDITURE	
Grant from Board of Trustees of King George V Jubilee Cancer Fund for Canada.....	\$7,000.00	Canadian Society for Control of Cancer.....	\$7,000.00
Bank Interest.....	33.93	Royal Trust Company Fees.....	13.07
Profit on Sale of Dominion of Canada Bonds..	99.86	Travelling Expenses.....	483.78
Bond Interest.....	326.75	Stationery and Printing.....	52.92
	\$7,460.54		
Excess of Expenditure over Revenue for the Year —transferred to Surplus Account.....	89.23		
	<u>\$7,549.77</u>		<u>\$7,549.77</u>

STATEMENT No. 3

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR YEAR ENDED
 31st DECEMBER, 1944

RECEIPTS		DISBURSEMENTS	
Balance of Cash in Bank, 31st December, 1943	\$3,422.02	Canadian Society for the Control of Cancer.....	\$6,000.00
Grant from Board of Trustees of King George V Jubilee Cancer Fund for Canada.....	\$4,500.00	Travelling Expenses.....	483.78
Bank Interest.....	33.93	Stationery and Printing.....	52.92
Revenue from Dominion of Canada War Loan Bonds.....	326.75	Royal Trust Company, Fees.....	13.07
Total Receipts.....	4,860.68	Total Disbursements.....	\$6,549.77
	<u>\$8,282.70</u>	Balance of Cash in Bank, 31st December, 1944	<u>\$1,732.93</u>

75. THE CANADIAN MEDICAL ASSOCIATION FUND IN SUPPORT OF THE WAR BENEVOLENT FUND OF THE BRITISH MEDICAL ASSOCIATION

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR YEAR ENDED 31st DECEMBER, 1944

RECEIPTS	DISBURSEMENTS
Individual Subscriptions from Saskatchewan.. <u>\$1,508.00</u>	Medical War Relief Fund, London..... <u>\$1,508.00</u>
	Balance of Cash in Bank, 31st December, 1944 <u>\$...</u>

AUDITORS' REPORT

We have examined the books and accounts of the Canadian Medical Association Fund in Support of the War Benevolent Fund of the British Medical Association for the year ended 31st December, 1944, and we have obtained all the information and explanations which we have required.

We report that, in our opinion, the above Statement represents a correct summary of the Receipts and Disbursements for the year, according to the best of our information and the explanations given to us and as shown by the books of the Fund.

(Signed) McDONALD, CURRIE & Co.,
Chartered Accountants.

Montreal, 26th February, 1945.

Approved.

REPORT OF THE EDITOR

Mr. Chairman and Members of General Council:—

76. I beg to report that the work of the *Journal* has been steadily carried on in the last year. The supply of papers has been adequate, but not more than that. The effect of the war in limiting the output has been inevitably severe, but whatever is offered from medical officers in the armed forces is given priority. Complaints of delay from men overseas have invariably been traced to unavoidable difficulties with the mails. There have been some contributions which will unquestionably be of great value in the historical aspect of military medicine, and I hope to obtain more. Those in civil practice, of course, are under extreme pressure, but I should like to repeat my exhortation to send in more case reports. These occupy a most valuable and attractive place in medical literature.

77. Health insurance and medico-political affairs generally continue to occupy our attention, and special efforts have been made to keep our readers in touch with them. The addresses given by our President at the various Divisional Meetings have been especially timely.

78. The *Overseas Bulletin* has been issued as material has permitted. The situation in medico-political affairs, news of which it was intended to disseminate to men overseas, has become static at the moment, but certain other developments, particularly prepayment plans for medical care, are being given attention. Difficulties of distribution of the *Bulletin* have been considerable. Six have been issued to date.

79. Certain improvements have been made in the form of the Index to the *Journal*, which it is felt add greatly to its appearance and value.

80. The growth of Industrial Medicine has been recognized in devoting space to a regular series of papers on this important professional development.

81. I should like to extend my warmest thanks to the Divisional Secretaries for their continued interest and support.

82. Our printers, the Murray Printing Company, have continued their excellent work under trying conditions of labour.

All of which is respectfully submitted.

H. E. MACDERMOT,
Editor.

Approved.

REPORT OF THE MANAGING EDITOR

Mr. Chairman and Members of General Council:—

I have the honour to present the following report:
83. The year was notable for a sharp rise in *Journal* advertising revenue, the amount being the highest ever recorded in the *Journal's* history, viz., \$50,275.52. This represented an increase over 1943 of \$8,122.

It shows a persistence of the upswing in advertising receipts observed in the last three years. This has been due partly to a greater use of the *Journal* by advertisers, but is mainly the result of the higher advertising rates in force since 1941.

It should be noted however that the increased advertising volume has resulted in increased printing costs, and that the advertising rates of the *Journal* are perhaps lower than they should be, taking into consideration the steady rise in the circulation of the *Journal*.

There is a consensus in well-informed advertising circles that the present favourable advertising conditions are likely to be continued for some years to come.

84. The question of a further increase in our rates should be given consideration.

All of which is respectfully submitted.

F. S. PATCH,
Managing Editor.

Approved.

REPORT OF THE COMMITTEE ON MEMBERSHIP

Mr. Chairman and Members of General Council:—

Your Membership Committee begs to report as follows:

85. In spite of further depletion, due to war activities, the membership this year has been maintained and slightly increased, though still too far below our 100% objective.

86. New Brunswick and Alberta continue to give us 100% enrolment.

Ontario, in spite of an increased fee, has maintained its percentage and the other provinces have, on the whole, shown slight increases.

Nova Scotia and Manitoba are giving consideration to some plan of all-inclusive fee, such as established in Alberta.

87. Your committee feels that, while 100% membership is most desirable and would appear to be possible only by some method of compulsory fee, which can be accomplished only by changes in the existing Medical Acts in some of the provinces, and as such Acts fall wholly under provincial jurisdiction, action in this regard must of necessity come from the Divisions. When such action is taken, we suggest the heartiest co-operation and support of this Association.

Your committee recommends to Council that for the balance of the year of demobilization and the succeeding calendar year, returning medical officers be granted membership under the same conditions as they enjoyed while serving in the armed forces, and that the Divisions be so notified and asked to co-operate.

All of which is respectfully submitted.

W. G. BEATON,
Chairman.

Approved.

MEMBERSHIP FEES OF DEMOBILIZED MEDICAL OFFICERS

After full discussion, it was duly moved, seconded and agreed

"That the nine Divisions be advised that, upon receipt of advice from a Division that a demobilized Doctor has been granted free membership in that Division for a period to include one full calendar year following his demobilization, the C.M.A. will grant this member free membership for the same period, including the *Journal*."

MEMBERSHIP OF DOCTORS SERVING WITH UNRRA

It was agreed that, upon being advised by a Division that one of their members is serving with UNRRA, the C.M.A. grant him membership without fee; and, if he desires the *Journal*, it be sent him at the reduced rate of \$4.00 per year.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

Mr. Chairman and Members of General Council:—

88. As the Canadian Medical Procurement and Assignment Board has assumed full responsibility for the arrangement of Post-graduate and Refresher Courses for demobilized medical officers, no action in this regard has been necessary by this Committee. However your chairman has been appointed a member of the Sub-Committee on Education of the C.M.P.A.B. and attended a meeting of that Committee in Ottawa on March 2, 1945.

89. Inasmuch as the Refresher Courses for demobilized medical officers will fully tax all available facilities when the project commences, it was felt by the nucleus of the Committee on Education of the C.M.A. that some intensive effort should be made as soon as possible to provide for the needs of civilian practitioners.

A questionnaire was sent to the other members of this Committee, i.e., the chairmen of the Provincial Committees asking the following questions:

1. Do you favour the establishment or continuation of short refresher courses for civilian practitioners?

2. Would your local Provincial Committee be willing to undertake the establishment and arrangement of such courses at various suitable centres in your Province?
3. Would your teaching hospitals and certain of your larger non-teaching hospitals be willing to co-operate in the carrying out of such courses from time to time?
4. Have you any other suggestions?

From the replies it has been ascertained that in Alberta, Saskatchewan, Nova Scotia and in several centres in Ontario Refresher Courses have been regularly held throughout the war years and that these have been well attended. This shows a consciousness on the part of the profession of a need for such courses even during these strenuous days.

90. The Committee wishes to congratulate the C.M.P.A.B. upon the splendid manner in which they are organizing facilities for the Refresher Courses for demobilized medical officers in connection with which they are utilizing several of the larger hospitals, e.g., Hamilton, Ottawa and Vancouver where undergraduate medical teaching is not carried on.

91. It is suggested that these arrangements might be continued as the basis of a Post-graduate structure which might be taken over and carried on by the C.M.A. after its immediate purpose has been accomplished. There seems to be a need for some such national post-graduate scheme in which the type of teaching could be supervised and directed by some central body.

All of which is respectfully submitted.

O. W. NIEMEIER,
Chairman.

Received.

REPORT OF THE DEPARTMENT OF HOSPITAL SERVICE

Mr. Chairman and Members of General Council:—

92. The Department of Hospital Service has had another busy year in connection with its routine and special activities. Many inquiries are being received from all parts of Canada on a wide range of topics related to hospital work and these have been handled to the best of our ability. In some cases these inquiries are of a simple nature, necessitating very little study or investigation, while in other cases the problems presented would require many days of steady work and much time-consuming solicitation of data. Unfortunately with but one assistant, it is now quite impossible to handle as many of these inquiries as we would like and those which would require a questionnaire of wide distribution can seldom be handled, partly because of our personnel shortage and partly also because of the inability of over-worked hospital administrators to reply to any but the most important questionnaires at the present time.

93. Many of the inquiries being received at the present time relate to new construction. The long lag in hospital construction during the war years and the steadily increasing use of hospitals for so many conditions has made new construction most imperative. Both the medical staffs and the boards of a large percentage of our hospitals are now agreed that new construction cannot be delayed much longer. A study in one of our largest provinces last year revealed that some 84% of the general hospitals of all sizes were planning to build in the near future. In this province a study by another committee of experts would indicate that the immediate construction necessary in active, chronic and convalescent hospitals would exceed thirty million dollars.

94. With the object of meeting the inquiries of so many building committees which are frequently at

sea as to how they should proceed to raise funds, employ an architect, work out preliminary plans, etc., the Department of Hospital Service has now completed a manual on hospital construction which should prove very helpful in these cases. This manual has been prepared with the assistance of one of our leading hospital architects and has been very carefully checked and revised by a number of experienced architects and administrators in various parts of the country. A number of floor plans and other illustrations that would be of help in the building of hospitals are included. This booklet should be available for distribution by the time of our annual meeting.

95. In this connection much has been said in the press and over the radio respecting "war memorials". At the moment the popular fancy seems to be centred on recreational centres for communities as war memorials. It is here suggested that members of Council in considering this matter in their own communities might give serious thought to the recognition of hospital facilities as a war memorial. This might either be an addition to an existing hospital or hospitals, or in some cases might be an entirely new hospital. Following the last war, many of our finest small hospitals were erected as war memorials. Certainly there could be no finer memorial to those who have died in defence of their country than to make provision for the care of the dependents whom they have left behind and for their friends who mourn their loss.

96. Internships and Residencies.—A few changes have taken place in the list of hospitals approved for internship but on the whole it varies little from year to year. Occasionally hospitals are raised from the commended or partially approved list to the approved list and conversely there are some that cannot be retained on the approved list due to laxity in complying with the requirements set forth in the basis of approval. The Committee has taken into consideration wartime factors which have made it difficult to maintain normal standards or service, but have not permitted this viewpoint to condone unnecessary departures from accepted standards.

97. Again this year the situation with respect to interns is very serious in most of the non-teaching hospitals. Most report that they have fewer interns than ever despite the fact that a normal number of medical students are being graduated and practically all are taking internship.

98. The solution of this problem will require careful thought. Although internships are required before graduation by several of our medical schools, they are not an essential requisite for the licence to practise in any province, nor are they required for the certificate of the Medical Council of Canada. Therefore any graduate internship is on a strictly voluntary basis except in so far as it is required at the present time for those in uniform. The suggestion has been made by the staffs of the larger non-teaching hospitals that some form of rationing should be instituted which would distribute those taking internships over a greater number of the large general hospitals of the country and limit their congregation in a few hospitals. However, as medical schools requiring undergraduate internship have an obvious right to designate the hospitals where these undergraduate internships may be served and as in the case of graduate internships the internship is a voluntary one and some choice should be given to the applicant, it is questionable if rationing would be an ultimate solution. During this war period when the majority of the recent graduates are in uniform during their internship, it might be possible for the C.M.P.A.B. to allocate those interns who are in the Services, just as the Services themselves would allocate the medical officers to various stations when they go on active service. This matter is under consideration by the C.M.P.A.B. The Canadian Intern Board which helps to place graduate interns from four of the medical schools is operated

by the Canadian Association of Medical Students and Interns and would have no power either to allocate interns or to make any attempt to ration them. Its powers are distinctly limited. The Canadian Medical Association, the Medical Council of Canada and the various provincial licensing bodies would have no jurisdiction in allocating graduate interns. Any action to bring about more equitable distribution aside from what might be undertaken by the C.M.P.A.B. during this war period would need to be a matter of voluntary limitation of internship on the part of the teaching hospitals. The return of a large number of medical officers, some of whom will desire appointments as residents or senior interns may to a limited extent relieve the situation in the teaching hospitals and in certain other large hospitals and so permit the placing of more junior interns in those hospitals now without adequate or any intern staffs.

99. It should be borne in mind that under normal conditions between 85 and 90% of our active public hospitals in Canada never have the services of interns. Most of these are too small to command intern services. For the majority of these hospitals it would seem that either of two possible solutions, or a combination of them, would be the logical solution. (1) House officers might be utilized. These would be resident house physicians or house surgeons who might be older than the average present intern and who would be paid a fair salary and expected to remain for several years. Preferably a licensed doctor, he would have more responsibility and perhaps fewer routine duties than the present type of intern. Although not available at the present time, such individuals might be available in reasonable number in the post-war years. (2) The other possible solution is that which is now being practised to a large extent across the country; i.e., the employment of adequately trained graduate nurses as clinical assistants on the wards or in the operating rooms for certain clinical duties. In many hospitals properly trained technicians are going to the wards and doing a certain amount of clinical laboratory work there and in other hospitals record librarians or specially trained nurses are assisting the medical staff by recording the clinical history up to but not including the physical examination. Although this development is not an ideal one, it has been found to be the only practical solution in a great number of our smaller hospitals for if this practice be not followed it is found that many clinical procedures are not done, certain desirable laboratory work is not carried out and clinical histories are not recorded. The ideal solution for many hospitals of medium size when doctors and nurses again become available might be a combination of a salaried house officer with non-medical clinical assistants.

100. Approved Schools for Laboratory Technicians.—The secretarial work for the committee charged with the approval of schools for laboratory technicians has been delegated to this Department and is now taking a considerable portion of our time. Much progress has been made in clarifying the educational situation for laboratory technicians and sound groundwork has been laid for any future development. This work is reviewed in more detail in the report of the Chairman of this special committee, Dr. James Miller.

101. In this connection the Secretary of this Department has served on a committee appointed by the Minister of Health of Ontario, under the Chairmanship of Dr. W. L. Robinson, which has drawn up extensive recommendations for a revision of the regulations governing hospital and commercial diagnostic laboratories in that province. These recommended regulations, which are designed to provide better control of the work done in diagnostic laboratories, have been forwarded to the Minister for the necessary approval.

102. Returning Medical Officers.—During the year assistance has been given to a special committee of the C.M.P.A.B. in a study of the possible opportunities in the non-teaching hospitals for (a) refresher courses

in various subjects and (b) senior internships and residencies. A study has been made also of the opportunities that might be available in Canada for returning medical officers who have become interested in executive and administrative work and might desire to go into hospital administration as a special field of work. Although not commonly listed as one of the medical specialties, it should be more widely recognized, particularly among those who have contact with senior medical students and interns, that hospital administration is a very attractive but highly exacting field of specialization for members of the medical profession. Hospital administration requires such a wide range of knowledge and such exacting personal qualifications that a number of universities, particularly in the United States, are giving carefully planned special courses in hospital administration for university graduates, lay or medical, who desire to take up administration seriously as a lifetime career. There is a field in administration for those with either professional or lay backgrounds of training and experience and it is quite possible that medical men may lose their opportunity to hold the leading administrative posts as time goes on because of the increasing number of university graduates in economics and other courses who are taking post-graduate work in this subject and equipping themselves by special training for these posts. After the last war a number of our present day leading medical administrators came into the hospital field through an interest in administration aroused during their war service. In a similar fashion it is hoped that some of our young medical officers may turn to administration after this war.

103. During the year we have had the opportunity of assisting several of the provincial governments with respect to hospital problems and development. Most intensive work was done in connection with an Advisory Committee on hospitalization set up by the Ontario government. This Committee has been charged with outlining the hospital needs of various types for the entire province for the immediate post war period and over the next decade. This Committee is also making recommendations with respect to types of construction and apportionment of capital cost. Other activities have included certain studies and recommendations with respect to medical or hospital prepayment plans or health care; service on a Federal advisory committee on penicillin during the period when that drug was in short supply and had to be rationed; and working with a committee of the Canadian Red Cross Society along with other hospital representatives to ascertain the feasibility of a plan whereby the Red Cross Society might maintain its blood donor clinics in the post war years with the object of utilizing blood or blood derivatives for civilian use.

104. *Appreciation.*—Again the Department of Hospital Service wishes to record its appreciation of the generous assistance given by the President and Officers of the Sun Life Assurance Company of Canada, a contribution without which it would not have been possible to maintain the work of the Department of Hospital Service.

All of which is respectfully submitted.

G. HARVEY AGNEW,

Secretary.

Approved.

REPORT OF THE COMMITTEE ON LABORATORY TECHNICIANS

Mr. Chairman and Members of General Council:—

105. A meeting of the Committee was held in May at the time of the Annual Meeting. Two meetings of the Nucleus Committee were subsequently held, one on October 21st, 1944, the other on February 10th, 1945.

I. CANADIAN SOCIETY OF LABORATORY TECHNOLOGISTS

106. As stated in our last report the Committee considers that it is advisable to encourage technicians to become members of the Canadian Society of Laboratory Technologists in order that as far as possible there may be one official registry of technicians throughout Canada. As pointed out in our last report this is rendered advisable because of the trend of future developments in legislation. The C.S.L.T. membership has been recognized by the Canadian Medical Association as the equivalent of a registry of technicians. General membership of all technicians in Canada in a common educational organization is only a goal to be aimed at as many present technicians could not fulfil the preliminary educational requirements and others have had no special desire to become members. In pursuance of the policy of encouraging technicians to join the C.S.L.T., your Committee has suggested that it would be advisable temporarily to waive the requirement that candidates for membership have senior matriculation or the equivalent. As regards the requirement that there be a period of preliminary general laboratory training for those technicians taking the Specialty Certificate, the feeling of the Committee is that after July 1st, 1945, or such other date to which the deadline may be revised, those who have not been graduated in biological sciences from an accredited university or college should be required to take a year's training in general work before becoming eligible to take one of the specialty examinations.

107. In view of certain protests respecting the severity of recent examinations held by the C.S.L.T., the Committee has made some suggestions to the Executive of the C.S.L.T.: (1) that a more complete syllabus of studies be prepared by the Executive to act as a guide to the various schools. This suggestion has already been acted upon and a draft syllabus of studies prepared which has been circulated to several pathologists with a request for comments. (2) The second suggestion made was that the Executive of the C.S.L.T. might give more consideration to the setting and marking of their examination papers and that for this purpose the assistance of two teaching pathologists on their examining board might be desirable.

II. APPROVAL OF UNIVERSITY COURSES

108. Two universities, Queen's in the east and Saskatchewan in the west, are now graduating diplomates in technology who have already received their B.A. or B.Sc. degrees. McMaster has such a course planned on paper and two other universities are interested in setting up courses of training for technicians. In order to regularize the relations of these schools with the C.M.A., a sub-committee was appointed to draw up a basis of approval. This sub-committee has reported.

III. ANNUAL CHECK-UP

109. Dr. Harvey Agnew suggested that it was useless to approve schools for technicians unless this approval was followed up by a request for annual supplementary data from the directors, by which such schools could be judged as to whether the teaching done was carried out efficiently and in conformity with the standards set up. The principle of such an annual check-up was conceded and a sub-committee was appointed by the Chairman to work out the details.

IV. TECHNICIANS' SALARIES

110. At a Committee meeting held a year ago Dr. Ralph Smith of Halifax raised the general question of technicians' salaries and the Secretary was asked to obtain information regarding this matter. At the meeting of the Nucleus Committee held in October this information was given. It showed that the salaries paid in the

Maritimes were, as a rule, much lower than those in other parts of Canada. While acknowledging the importance of the matter, the Committee felt that it could take no action at the present time.

V. LIMITATION OF THE NUMBER OF APPROVED SCHOOLS IN ANY ONE AREA

111. This matter was raised by Dr. Berger who considered that if a great many schools were approved there would eventually be a surplus of technicians, also that hospitals might apply for approval with the intention of training only enough technicians to fill their own needs and that such a widespread system would render it difficult to uphold high standards of training. The demand for technicians being in excess of the supply, the majority of the members present considered that the number of schools should not be limited at present.

VI. MINIMUM SIZE OF HOSPITAL UNDERTAKING TEACHING

112. In the "Basis of Approval" the size of hospital was originally set at 200 beds. This limitation has already been departed from and hospitals of less than 200 beds have been approved. It was agreed that, as a matter of future policy, wherever for special reasons it seemed desirable to do so the Committee might depart from the original ruling respecting bed capacity.

VII. DIRECTION OF TWO SCHOOLS

113. The question was raised as to whether it should be permissible for one director to be in charge of two training schools. It was agreed that this depended upon whether the director had adequate medical assistance and that it should be a matter for decision in each individual case.

114. VIII. THE FOLLOWING ADDITIONAL SCHOOLS HAVE BEEN APPROVED

Hotel Dieu de Quebec, Quebec City, Que.
Ottawa General Hospital, Ottawa, Ont.
Women's College Hospital, Toronto, Ont.
Toronto East General Hospital, Toronto, Ont.
St. Joseph's Hospital, Toronto, Ont.
Holy Cross Hospital, Calgary, Alberta.
St. Paul's Hospital, Vancouver, B.C.
St. Joseph's Hospital, Victoria, B.C.
Royal Jubilee Hospital, Victoria, B.C.

IX. ONTARIO LABORATORY REGULATIONS

115. During the past year a Special Committee on Laboratory Regulations named by the Ontario Department of Health has been working on a code of laboratory regulations for hospitals and private diagnostic laboratories in that province. Several of the Ontario members of our Committee were members of this Committee on Regulations. Although the regulations have not as yet been officially approved, it is understood that they will define the various types of technicians and other non-medical workers in laboratories and will set up safeguards which will ensure that all technical laboratories shall be under adequate supervision. These regulations should be a great help in advancing the standards of laboratory work. The standards for the training of technicians set by the C.S.L.T. are being recognized in these regulations though not to the exclusion of other workers.

X. TECHNICIANS IN THE ARMED SERVICES

116. Technicians in the Armed Forces, many of whom received their training while in the Services, are making inquiries concerning their status in civilian life. While the C.S.L.T. is requiring reasonably high standards of training and experiences of its members and these standards are to be raised to a higher degree in the near future, it is understood that special consideration will be given to men and women who have served as laboratory

workers in the Armed Forces. In evaluating their credentials credit will be given for any courses taken while in the Services and for the experience obtained.

All of which is respectfully submitted.

JAMES MILLER,

Chairman.

Approved.

REPORT OF THE COMMITTEE ON INDUSTRIAL MEDICINE

Mr. Chairman and Members of General Council:—

117. Following approval of the formation of a Section of the Association on Industrial Medicine, a program has been arranged for its first meeting at the time of the Annual Meeting in June.

118. The *Canadian Medical Association Journal* has set aside a section for abstracts of current industrial health literature. These abstracts are now appearing regularly.

119. A series of articles is appearing in the *Journal* on various aspects of industrial health. Arrangements have been made to bring this group of articles together in pamphlet form for use of industrial physicians.

120. Information is being obtained from the Chairmen of Industrial Medicine Committees of the Divisions as to the number of copies of "Standing Orders for Nurses in Industry" which can be usefully distributed and the best method for the distribution, with a view to a request to the Executive for funds to make this possible.

121. A Sub-Committee on Ophthalmological Problems in Industry was to meet with a Sub-Committee of the Canadian Society of Ophthalmologists to consider standards of vision and methods of visual examination in industry but the committee has been advised that this must await the Annual Meeting.

122. A statement has been prepared on the subject of "Rehabilitation of War Veterans in Industry" in so far as physicians are concerned, with a view to its publication in the *Journal*.

123. At the meeting of the nucleus committee on Industrial Medicine on April 6, 1945, it was moved by Dr. Young and seconded by Dr. Bird:

"THAT this committee is of the opinion that there should be some source of information for both industrial organizations and interested doctors as to the value of medical supervision in industry and that the Montreal Industrial Medical Association, through one of our members, Dr. Graham Ross, be asked to make a study relating to such information and correspond with whatever groups the Society may think best and that this committee would be glad to receive a report on such a study."

All of which is respectfully submitted.

J. G. CUNNINGHAM,

Chairman.

Approved.

REPORT OF THE COMMITTEE ON MATERNAL WELFARE

Mr. Chairman and Members of General Council:—

The Committee on Maternal Welfare begs to submit the following report for 1944-45:

124. The maternal mortality rate in the Dominion for the year 1943 was 2.8 per thousand live births. This is the lowest yet recorded. The stillbirth figures of 24 per thousand live births is also the lowest on record in Canada.

The causes of maternal death were as follows:

Abortion	17.5%
Ectopic Gestation	4.5%
Hæmorrhage	25.3%
Toxæmia	20.3%
Infection	13.6%
Accidents of Labour	10.8%
Unclassified Causes	8.0%

125. The following has been suggested by the Quebec Division and has been considered and strongly recommended by the Central Committee:

In view of the increasing incidence of syphilis in pregnant women during the past year, both in the early and later phases of pregnancy, it is becoming more and more apparent that in all cases of pregnancy provision should be made for a Wassermann test and where at all possible this test should with advantage be taken in the early stages to detect pre-existent syphilis and in the later stages of pregnancy to detect syphilis acquired during the pregnancy.

The routine application of the test has revealed an increasing incidence of the disease and in certain areas where it has been carried out for some time the importance of this disease in the causation of premature and still birth has been amply demonstrated. In the vast majority of cases where the Wassermann was positive no other clinical evidence was available to establish a diagnosis.

In seventeen States of the Union in the United States this blood test in pregnancy is compulsory. Your Committee is of the opinion that this procedure should be widely adopted in this country.

126. The second recommendation the Committee desires to make is that the division recognize the great value to women in childbirth of having readily available ample supplies of whole blood and blood plasma for emergent use. The Red Cross and allied agencies during the War have demonstrated the possibilities of establishing depots throughout the country for the collection and processing of blood and it is the hope of the Committee that the Council of the Division may direct attention to the advisability of continuing this work in the post-war period.

127. The Committee further recommends that inasmuch as the infant death rate remains at a high level, and that prematurity is an important contributory factor, every effort be directed to the reduction of the premature birth rate. To this end, it is recommended that the Divisions seek means of working in association with the Provincial Departments of Health in promoting schemes for the better care of the premature baby and where possible the institution of means of prevention.

All of which is respectfully submitted.

F. G. McGUINNESS,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON PHARMACY

Mr. Chairman and Members of General Council:—

128. At the meeting of General Council in 1943, the Committee on Pharmacy was charged with the duty of preparing a Formulary which would be useful under National Health Insurance. The central nucleus consisting of V. E. Henderson, Chairman, L. C. Edmonds, R. F. Farquharson, H. I. Kinsey, J. W. Reddick, R. W. I. Urquhart, G. S. Young, and G. H. W. Lucas, Secretary, was at once formed and a draft prepared. Sections of this draft were incorporated in the report presented by the committee at the last meeting of General Council, approved by it and the Committee instructed to complete the work. This has been done. The central nucleus has had frequent long evening meetings throughout both years and has carefully revised and considered the material consisting of Sec-

tions of General Medicine, Dermatology, Children's Diseases, Eye, Ear, Nose and Throat and Venereal Disease. All material as considered by the central nucleus has been sent out to the chairmen of the provincial committees and criticism and advice have been received from them. The provincial chairmen were, by resolution of Council, made members of the central nucleus. The provincial chairmen this year were R. A. Gilchrist, British Columbia; I. R. Bell, Alberta; B. C. Leech, Saskatchewan; J. E. Hossack, Manitoba; W. G. Kenny, Ontario; W. deM. Scriver, Quebec; H. W. Wright, New Brunswick; K. A. MacKenzie, Nova Scotia; J. A. McMillan, Prince Edward Island. The Chairman wishes to express to these provincial chairmen and to those who have served on the various committees his appreciation of their advice and interest. The Formulary is now complete and has been put into the hands of the General Secretary.

129. The Committee on Pharmacy would strongly recommend that the Executive be authorized to publish the same and take steps to put it in the hands of the practitioners of the country.

All of which is respectfully submitted.

VELYIEN E. HENDERSON,
Chairman.

Approved.

After discussion of this report, it was agreed that:

1. 20,000 copies of the Formulary be printed in English and 5,000 in French.
2. That each doctor in Canada be given a copy without charge.
3. That copies be sold to others desiring them, this being done through a publishing house on a percentage basis.

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS

Mr. Chairman and Members of General Council:—

130. The action of the Federal Government in abrogating the Department of Pensions and National Health and replacing it with the Department of Veterans Affairs and the Department of National Health and Welfare necessitates a change in the Constitution to permit representation of the two new departments on the General Council. Accordingly, the Committee on Constitution and By-Laws recommends the following revision of the Constitution, notice of which has been published in two issues of the *Journal* as is required by the Constitution and By-Laws:—

131. THAT:

Article IX—The General Council—Section (f), which now reads, "Two representatives of the Department of Pensions and National Health who are members of the Canadian Medical Association, one of whom shall be the Deputy Minister of Pensions and National Health", be deleted and that it be replaced by the following:—

Section (f).—The Deputy Minister of National Health and Welfare (Health).

Section (g).—The Director General of Treatment Services of the Department of Veterans' Affairs.

Approved.

132. At the last meeting of the General Council your Committee advanced, for discussion, proposals that the Constitution and By-Laws be revised to permit representation on the General Council of candidates appointed by certain affiliated societies and by medical schools. The pros and cons of these proposals were discussed at length in Council and the matter was finally referred to the Executive Committee for study and report at a later date. The Executive Committee referred the problem back to the Committee on Constitution and By-Laws for further study, together with the additional problems of "student membership" and "the election of members-at-large to the Executive Committee". Your Committee has again discussed these problems and makes the following recommendations:
133. The Committee is of the opinion that the General Council would be strengthened by representation on it of members elected from certain of the affiliated societies and from the medical schools. Also that provision should be made for undergraduate membership and for the election from the General Council of members-at-large to the Executive Committee. These however are radically new proposals and for that reason the Committee feels that final action should not be taken upon those proposals until the termination of the war permits the return of overseas medical officers to take part in the discussion. The Committee recommends therefore, that the proposals be tabled for information and that action upon them be deferred till 1946.
134. The proposals are:—
- (a) That each of the Universities of Canada which have a Medical School be represented on General Council by the Dean of the Medical School.
 - (b) That affiliated societies which are medical under stipulated circumstances, be represented on General Council, each by one member.
 - (c) That provision be made for undergraduate membership in the Canadian Medical Association.
 - (d) That there be added to the Executive Committee three members-at-large elected from the General Council.
135. The Committee desires that the General Council be informed of the merits of these proposals and to that end suggests that they be discussed at this meeting.

All of which is respectfully submitted.

R. I. HARRIS,
Chairman.

After full discussion of Sections 132, 133, 134 and 135 of this report, it was agreed that they be referred to the Divisions for study and report.

REPORT OF THE CENTRAL PROGRAM COMMITTEE

Mr. Chairman and Members of General Council:—

136. Your Committee has held seven meetings. At its first meeting your Committee considered a most helpful list of subjects and names of speakers submitted by the Local Program Committee in Montreal. In addition offers of papers were received from mem-

bers of the Association. These contributions formed a basis for the drafting of the Scientific Program.

137. The general order of the Scientific Program for the Annual Meeting is the same as that adopted in recent years, with Round Table Conferences followed by General Sessions on three mornings and Sectional Meetings on Wednesday and Thursday afternoon.

The Scientific Program provides for twenty-four Round Table Conferences conducted by ten sections, the presentation of twelve papers at General Session and eighty-two papers at meetings of eleven Sections. The subjects selected for presentation and discussion cover all branches of medicine.

138. Our Guest Speakers will be: Dr. O. H. Wagenseen, Professor of Surgery, University of Minnesota, who will deliver the Lister Lecture; Dr. F. A. Willis, head of Cardiology Section, Division of Medicine, Mayo Clinic; and Dr. A. D. Ruedemann, Department of Ophthalmology, Cleveland Clinic.

139. In conclusion, your Committee wishes to acknowledge the valuable assistance received from the Local Program Committee in Montreal in the drafting of the Scientific Program and to those contributing to the Scientific Program by the presentation of papers and by conducting Round Table Conferences.

All of which is respectfully submitted.

DUNCAN GRAHAM,
Chairman.

Approved.

REPORT OF THE DEPARTMENT OF CANCER CONTROL

Mr. Chairman and Members of General Council:—

140. Three years ago the Board of Directors of the Department of Cancer Control recommended to the Executive Committee that because of war conditions, the activities of the Department should be restricted. In keeping with this policy the only active work undertaken during this period has been to send speakers to address the Divisional Medical Conventions on various aspects of the subject of malignant disease. These addresses, which deal with the questions of early diagnosis and treatment, are designed principally for the medical profession, but one address at each centre is given to the general public.

141. In view of the above-mentioned policy your Board of Directors requested the Trustees of the King George V Silver Jubilee Cancer Fund to hold in abeyance for the present the monies which had been paid annually by that Fund to the Canadian Medical Association.

142. During the past year your Board of Directors has concerned itself particularly with the question of the wisest use to which this fund can be put, for the Trustees of the fund look for advice in this matter to the Canadian Medical Association. Up to the present it has been felt, both by the Trustees of the Fund and by your Board of Directors, that it was unwise to expend the capital sum, which amounted to some \$492,000. Only the interest on that sum, amounting to \$14,000, has been used. This has been paid annually to the Canadian Medical Association. At first the Association retained \$7,000, which was devoted to the purpose of educating the profession with regard to malignant disease, the production of a Handbook on Cancer, etc. Since 1942 it was decided, on account of the difficulties and strain of the war years, that this sum could not be usefully expended, and to return it to the Fund. The other \$7,000 was paid by the Association to the Canadian Society for the Control of Cancer, the principal object of which body is the dissemination of knowledge regarding malignant disease among the general population.

143. Since its inception this society has had rather a difficult time, but within recent months it has experienced an infusion of new life, a large amount of organization has been undertaken, and the future may be looked forward to with confidence. Favourable consideration might be given to the proposal to ask the Executive to make a further contribution to the society at the present time. It is expected that the financial status of the society will soon be greatly improved, as a result of which it will not only become self-supporting, but will be in a position to contribute materially to the King George V. Silver Jubilee Fund. Should such be the case, the time will soon come when the general policy as to the wisest use of that fund will need to be reviewed. After the war there will be many calls on the Fund both for laboratory research and for clinical investigations. It may well be that the capital sum should be expended in furthering these projects.

144. The future policy of the Department of Cancer Control will also have to be reviewed. It seems probable that practical work in the cancer field will develop largely along provincial lines, as can already be seen in a number of the provinces. Co-ordination of these activities would be a useful task, which might well be performed by the Department of Cancer Control. Of particular value would be a statistically controlled review of the results of the various methods of treating cancer in our hospitals, both large and small. Your Directors propose to ask the Provinces to re-examine the whole situation with a view to determining what the future policy and activities of the Department of Cancer Control should be.

All of which is respectfully submitted.

WILLIAM BOYD,
Chairman.

Approved

REPORT OF THE COMMITTEE ON EPIDEMICS

Mr. Chairman and Members of General Council:—

145. Your Committee is happy to report there has been no epidemic of serious proportions to cope with since last report to this Council a year ago.

However, information continues to come that there is an increasing prevalence of influenza in the eastern part of Germany as well as typhus in various parts of that country. Some authorities tell us also that a serious widespread epidemic in the natural course of events is long overdue. The severe undernourishment of large masses of people across Europe might well give verity and impetus to the spread of any disease which did tend to become epidemic.

146. Our members are conscious of the meaning of the above facts. There has been no general meeting of the National Committee since our last report as our organization work is well completed and up to date. Hence it has seemed unnecessary for the time being to incur the expense and the sacrifice of time of our members coming together from far parts of the country.

147. Our nucleus committee has therefore considered it sufficient to keep in touch with the various Provincial Committees. This it has done and we have recent communications from the Chairman of all the Provinces with the exception of one. We have, by this means good reason to believe the Provincial Committees are conscious of their responsibility and are prepared to put well conceived plans into action speedily should the occasion of serious epidemic disease ensue.

All of which is respectfully submitted.

T. H. LEGGETT,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON CREDENTIALS AND ETHICS

Mr. Chairman and Members of General Council:—

Your committee begs to report as follows:

148. The only problem submitted to your committee during the year was whether it is ethical for a physician to obtain a patent on a surgical invention or device.

The reply was:

1. That the first consideration of the honourable physician is the welfare of the sick.
2. That it is undesirable that a physician should have a proprietary interest in any medical or surgical device.
3. That the rights of the physician as to priority of invention might be safeguarded, and the exploitation of the device by unscrupulous laymen prevented by obtaining a patent by an individual, which patent would be turned over to a University which would become the trustee of the patent.

All of which is respectfully submitted.

ROSS MITCHELL,
Chairman.

Approved.

REPORT OF THE COMMITTEE ON LEGISLATION

Mr. Chairman and Members of General Council:—

Since our last annual meeting we have to note the following legislative measures or proposals:

149. On July 27th, 1944, the Special Committee on Social Security of the House of Commons presented its final report on Health Insurance which reads as follows:

"After a long and careful study of the subject of Health Insurance which included the taking of evidence and receiving of briefs from all interested organizations, your Committee presents herewith a Draft Health Insurance Bill which, with minor amendments, it has approved with the exception of Clause 3 and Schedule 1 dealing with financial arrangements between the Dominion Government and the Provincial Governments. Your Committee recommends that this Bill be referred to the Dominion-Provincial Conference for consideration of its general principles as expressed in its various clauses, and of the financial arrangements involved."

150. Early this year, the Manitoba Legislature passed a bill providing for a Health Service Plan which includes:

(a) Prevention of disease through the medium of full time health units covering all of rural Manitoba. The cost of this service is estimated at \$1.00 per person per year, two-thirds of the cost to be assumed by the province and the balance by the municipality.

(b) Diagnostic facilities both of x-ray and laboratory type. Equipment for such service shall be compulsory for all hospitals, both rural and urban. The estimated cost is 50 cents per person, two-thirds paid by the province, one-third by the municipality.

(c) Limited medical care, the cost of which is to be shared by both the province and the municipalities which adopt the plan, on the basis of one-sixth to be paid by the province and five-sixths by the municipalities. This type of service would cost \$3.00 per person per year. Remuneration to the doctor would be by way of salary, capitation fee or fee for service rendered.

(d) Hospitalization.

The whole plan would be capable of being enlarged and expanded. In the event of National Health Insurance being adopted, the Manitoba Government would be immediately entitled to demand and receive payment for such services as it already had in operation.

151. Implementing a recommendation made in the Sigerist Report of the Health Services Commission, the Saskatchewan Government has offered complete Health Insurance Benefits to the welfare group of the province commencing January 1st, 1945. This group includes old age and blind pensioners, recipients of mothers' allowances, and provincial wards,—a group of approximately 25,000 persons. The government has undertaken to set aside \$9.50 per person per year to pay for this service. Doctors will be paid 50% of their accounts monthly, and the balance of the fund, if any, will be distributed to the doctors at the end of the year on a pro rata basis.

152. Early in April of this year, the Duplessis Government in the Province of Quebec abolished by Act of Parliament the Health Insurance Commission which the preceding government had established in 1941.

All of which is respectfully submitted.

C. J. VENIOT,

Chairman.

Approved.

REPORT OF THE COMMITTEE ON ECONOMICS

Mr. Chairman and Members of General Council:—

153. Throughout the past year the Committee on Economics has encountered greater activity at the provincial than at the national level. However, as provincial activity may be assumed to indicate the trend of thinking, it is possible that this is a forerunner of national health legislation in the not too distant future. Much of the year's work of the Committee has, therefore, been concerned with encouraging wider understanding and developing sound public relations with other national and representative groups.

154. At the meeting of Council last year it was agreed that Divisions should act together when "health insurance" legislation is introduced in any province and that in any matters of this nature affecting the medical profession it is our intention to act as a national unit. It is appreciated that in some cases provincial bodies have been given very short notice of proposed changes; but it is hoped that this principle will be kept in mind in the consideration of any provincial developments likely to have any bearing on the situation in other provinces.

FEDERAL HEALTH INSURANCE BILL

Present status

155. The Special Committee on Social Security completed its study of the draft "Health Insurance" Bill and approved its contents with the exception of the financial clauses. On July 28th, 1944, the Chairman of the committee, the Hon. Cyrus Macmillan, reported the findings of this committee to the House of Commons together with the committee's recommendation that the proposed Bill be submitted to the proposed Dominion-Provincial conference for consideration of its general principles and of its financial arrangements. This conference, as members of Council know, did not materialize.

Administrative change

156. On October 13, 1944, the Prime Minister announced certain departmental changes; viz., the breaking up of the Department of Pensions and National Health into two separate departments, to be known respectively as the Department of Veterans' Affairs under

the Hon. Ian Mackenzie, and the Department of National Health and Welfare under the Hon. Brooke Claxton as Minister and Major-General G. B. Chisholm as Deputy Minister for Health. It is under this new Department of National Health and Welfare that health insurance would be administered.

Further study by the Solicitor

157. On request of the Executive Committee, the Solicitor has continued study of the draft Bill and has submitted a detailed report showing the changes in wording which have appeared since the earlier draft was studied in 1942. In this comprehensive report Mr. Fleming has given his interpretation of such changes and additions. These comments have been circulated to the various Divisional Committees on Economics for their information.

PROVINCIAL ACTIVITIES

British Columbia

158. Dr. G. F. Strong, Chairman of the Committee on Economics of the British Columbia Division, has sent in a stimulating report of the activities of his committee. To quote:

"Last year, in canvassing the ways by which we might improve our understanding of the whole subject of health insurance, we decided to set up a Joint Study Committee, consisting of representatives from those professions or organizations vitally interested in the problem. During the past year this Joint Committee has had regular monthly meetings. The Committee is composed of five representatives each from: the British Columbia Medical Association, the British Columbia Hospitals Association, the Pharmaceutical Association of B.C., the Registered Nurses' Association of B.C. and the British Columbia Dental Association. These meetings have proved most valuable and all of us have learned a great deal. The plan that we followed was that each group in turn was responsible for the program at one meeting. There was in every case a full round table discussion of the problems presented.

"The results of these deliberations have been of surprising benefit. While the medical members of this Joint Study Committee felt that they knew pretty well the problems of health insurance, all have learned much by securing the view point of the other interested groups. We would recommend that other Divisions might with profit follow this or some similar plan. It is our hope next year to continue this activity and invite other groups such as labour, women's organizations and so forth, to join in the round table discussions."

Saskatchewan

159. Of widespread interest was the publication in October, 1944, of the report of the Saskatchewan Health Services Survey Commission, as submitted by the Commissioner Dr. H. E. Sigerist. Dr. Sigerist, together with a committee of five, worked on this survey for a period of just under two months. The Commissioner presented his personal findings and recommendations under various headings: rural health services; urban health services; hospitals; special health services; public health services; personnel; recommendations for immediate action. The Report states: "The history of the last two decades already reveals a marked trend towards the socialization of essential medical services. . . . The goal is clear, it must be to provide complete medical service to all the people of the province, irrespective of their economic status, and irrespective of whether they live in town or country." And again, "The municipal doctor is the backbone of all medical service in this province."

160. The recommendations made in this Report include the working out in detail of the "needs of one or two sample districts, to determine the services required to satisfy these needs, and their cost", and also the study of "a scheme of compulsory health insurance" for the cities of the province.

161. In line with a further recommendation of the Sigerist Report, the Saskatchewan government announced that commencing January 1st, 1945, complete health services would be available to the welfare group of the province. This group includes old age pensioners and their dependents, blind pensioners, mothers' allowance recipients, wards of the province, and totals some 25,000 persons. The government has undertaken to set aside approximately \$9.50 per person per year for medical and surgical care. Out of this amount it will pay the doctors 50% of their monthly accounts and at the end of the year will distribute the balance, if such there be, on a *pro rata* basis.

Manitoba

162. Far reaching proposals for the development of health services in Manitoba were announced in January of this year in a radio broadcast by the Hon. Ivan Schultz the Minister of Health and Public Welfare for that province. The plan as envisaged embraces the development of preventive medicine, diagnostic services and curative services and increased hospital facilities. For the successful operation of these proposals, Mr. Schultz asked active public and professional support and co-operation. According to the proposals final control remains with the Minister although there is provision for an Advisory Commission of 11 members, of whom at least 4 would be doctors of medicine, which shall approve all regulations. Legislation to permit the implementation of these proposals has been passed.

Quebec

163. The Commission appointed in 1943 "to prepare a plan of universal health insurance" has been abolished by the present government.

Ontario

164. During the past year, the Ontario Division has been considering voluntary surgical care plans. At its Council meeting in November 1944, it was resolved that Council approves the adoption of some plan for surgical care and/or complete medical services, to be operated by the Division in conjunction with the Plan for Hospital Care. The Council then proceeded to discuss what services might be included. At the annual meeting of the Division last month, three plans were considered which ranged from a fairly complete list of services in hospital, office, and home, to a list practically restricted to major surgery in hospital, plus anaesthesia and limited radiology. It is to be noted that the Ontario Division, both in its plan for compulsory health insurance and its voluntary plans, urges administration of these plans by organized medicine.

SPECIAL STUDIES

REPORT OF SUB-COMMITTEE ON REMUNERATION

165. The following report has been submitted by Dr. G. F. Strong, Chairman of the Sub-committee on Remuneration:

"This Sub-committee regrets to state that it is not in a position to make any final report on this matter. A great deal of additional study has been given to the whole subject of the scale of fees and the relation between charges for various types of service. A recently prepared new scale of fees for the use of the Dependents' Board of Trustees has been studied with a good deal of interest.

"Your present committee is still convinced that the ultimate solution of the problem in Canada will

depend upon the utilization of a unit plan by which relation between the charges for various services can be adjusted, while the value of each unit might vary from province to province. There can be no doubt that the profession as a whole must set its house in order. There is too great a disparity between surgical fees and charges for other types of medical service. As far as the welfare of our country is concerned, with particular regard to the future, maternity service is a most important part of medical care. The charge for maternity service should be increased and the profession should render adequate antepartum and postpartum care in order to assure the lowest maternal and infant mortality.

"The romance and drama has largely left the surgical theatre, and surgical fees should be adjusted accordingly. Since the bulk of the work of any general practitioner consists of house and office visits, that must remain the principal source of medical income for his group. On the basis of the first examination and diagnosis much of the future of the patient depends. The fee for this first examination should, therefore, be sufficient to secure a high standard of service.

"In conclusion we can only suggest that this study be continued with the hope that some concrete recommendation of value may be forthcoming."

SURVEY OF VOLUNTARY PLANS

166. The rapid growth of voluntary plans for medical care in British Columbia led that Division to request that a survey of such plans be made by Mr. H. H. Wolfenden. The object of the survey was to obtain an expert opinion as to the necessary level of contribution. The other Divisions were asked whether there was desire to have this survey made a general one. From the replies received there did not appear to be a general desire for a national study and, therefore, the survey was confined to the situation in British Columbia. Mr. Wolfenden has presented his report to that Division. British Columbia has expressed itself as well pleased with Mr. Wolfenden's help in this matter.

The Executive Committee was instructed to give further consideration to having a survey made of Voluntary Plans.

REPORT FROM THE PÆDIATRICIANS

167. Acting upon a request received from General Council last year, the Canadian Society for the Study of Diseases of Children has presented a further report. As this was received since the last meeting of the nucleus of the Committee it has not had careful study by our Committee before presentation to the Executive and General Council. However it is presented as an Appendix to this report.

RESOLUTIONS RECEIVED FROM THE EXECUTIVE

168. After the annual meetings of 1944, the following resolution was forwarded to the Committee on Economics:

"That an actuary be employed to make a study of medical costs including medical education, set up in medical practice, general expenses of practice, provision for disability and retirement, which could be used by the profession in determining whether or not medical men are adequately paid."

169. To facilitate the implementation of this resolution the Committee on Economics have given consideration to two matters: (a) the sending out of a questionnaire to obtain information regarding medical incomes; and (b) provision for disability and retirement. After due consideration it was decided that any information relative to present medical incomes

would be unlikely to represent the situation in a post-war period and would, therefore, have little permanent value. It was accordingly decided that such a questionnaire should not be sent out at the present time.

170. With regard to provisions for disability and retirement, the suggestion has been made that the medical profession might be permitted to have a plan comparable to that allowed in the case of business firms whereby individual pension contributions up to \$600.00 per year are income tax free. This would stimulate the taking up of disability and retirement plans by the medical profession. A presentation on behalf of the medical profession, initiated by the British Columbia Division, has been made to the Royal Commission on Annuities and Family Allowances. Further action has been delayed pending the report of this Commission.

PUBLIC RELATIONS

171. In January a series of small dinner meetings was held in Toronto at which representatives of the Canadian Medical Association met with representatives of various national organizations. The meetings were entirely informal, there was free discussion and no planned addresses were given. In each case the objective was an exchange of opinions and a clarification of views. The groups participating included the Trades and Labour Congress of Canada and the Canadian Congress of Labour; the Canadian Chamber of Commerce and the Canadian Manufacturers' Association; the Canadian Legion and the National Council of Veteran Associations; and a representative group of Canadian life officers. Efforts are being made to arrange meetings in the near future with representative women's organizations and with the Canadian Federation of Agriculture. When a report of these meetings was presented to the Executive Committee in March a resolution was unanimously passed that this policy be continued and that it be extended to take in other national groups. The Executive also passed a resolution recommending similar undertakings to the Divisions.

172-174. We were impressed with the sincere desire of these various bodies to work with the Canadian Medical Association towards providing improved health services. Representatives of these organizations told us among other things:

1. That they were looking to the Canadian Medical Association for leadership;
2. That they were willing to assist in every way possible in providing improved health services;
3. That they were convinced such meetings were of great value and hoped they would be continued;
4. That at some not too distant date, representatives of all these groups should meet together with representatives of the Canadian Medical Association to discuss all matters relating to health, in the hope of initiating a plan whereby the good things arising from advances in the science of medicine would become available to every citizen of this Dominion;
5. That as the national prosperity is bound up with the maintenance of our export trade, it is essential that we do not unduly raise our costs of production;
6. That the national income must be divided amongst the various phases of national life; that health services cannot absorb more than a fair share of such income;
7. That the administration of any scheme should be kept out of politics as far as possible so that matters of health and health services should not become a political football;
8. That it is not in the best interests of national health that our brighter young men and women be discouraged from going into medicine.

175. Three requirements for improved health services were stressed:

1. The need of education of the public;
2. Extension of preventive health measures;
3. Increased hospital accommodation.

CAMSI

176. Early in April the nucleus of the Committee on Economics met with officers of the Toronto branch of the Canadian Association of Medical Students and Interns to consider the best means of effecting closer co-operation. An extremely interesting evening was spent and several constructive suggestions were made by these young men. They would like to see a page in the *Journal* devoted to the activities of the medical student organizations of the various medical schools; the students would provide the copy. They would like to see more literature from the Canadian Medical Association sent regularly to medical students. Enthusiastic discussion took place on the possibility of developing some form of junior membership among the students of the clinical years in the different schools. The suggestion was made also that it might be possible to have the viewpoint of these undergraduate members brought to the discussions at General Council by effecting an arrangement whereby representatives of the medical students could have seats on Council, possibly a representative from each medical school.

PUBLICITY

177. The Committee on Economics is pleased to report that certain publicity has been made available and further material is being prepared for the printer. Three articles which were written by Dr. A. E. Archer on "The Development of Health Insurance in Canada", have been brought together into pamphlet form and have been sent to all *Journal* subscribers. Additional copies may be had on request. The material for lay distribution has undergone several revisions and is expected to be available shortly.

178. RECOMMENDATIONS

1. That the policy of meeting with representative national groups for interchange of views be continued.
2. That Divisional Committees arrange with corresponding or other provincial groups for similar conferences.
3. That an effort be made to encourage closer understanding between the medical student body and organized medicine in each centre where there is a medical school.
4. That General Council give consideration to the calling of a special meeting at which time a more definite policy with regard to the implementation of health insurance could be studied and adopted.
Steps have already been taken to define a policy and it is hoped that a brief progress report regarding this will be presented to the meeting of Council.

ACKNOWLEDGMENTS

179. The Chairman of this Committee on behalf of the Association desires to express appreciation to the members of the Divisional Committees, the Nucleus Committee and to all others who have assisted in the activities of this Committee.

All of which is respectfully submitted.

HARRIS MCPHEDRAN,

Chairman.

Approved.

APPENDIX

Presentation of the Canadian Society for the Study of Diseases of Children respecting Medical Economics

(The following brief is submitted by the Canadian Society for the Study of Diseases of Children in accordance with the request of General Council last year.)

180. A pædiatrician is a physician who is especially trained in and devotes his professional practice to the care and study of the child in health and disease. This has come to mean in the last few years, not only combatting disease at the bedside, but also preventing disease by the use of every effective preventive measure, maintaining which is considered good health, and attempting to promote the best or optimum health.

181. In Canada, from a practical point of view, a pædiatrician is one who is certified as such by the Royal College of Physicians and Surgeons of Canada and the requirements for this include as a minimum: (1) general internship of at least one year; (2) study and special training in the specialty of not less than two years; (3) study and/or practice in the specialty for a further period of two years, and approval by the Council of the Royal College of Physicians and Surgeons of Canada. (For further details see "Regulations Relating to the Granting of Certificates of Qualification to Specialists"—R.C.P.&S. of Canada.) All the certified pædiatricians in Canada were consulted in the preparation of this brief.

182. Pædiatric practice has two functions, (a) consultation, (b) the regular care and supervision in health and disease of children who are brought directly to the pædiatrician for this type of service. The latter constitutes the bulk of ordinary pædiatric practice. The regular health supervision requires that the child have sufficiently frequent periodic physical examinations that normal healthy growth is maintained, defects observed and corrected in their incipient stage and the preventable diseases eliminated as far as possible. The keynote of pædiatric practice has always been the prevention of disease. (This will be explained in more detail later.) The care of the sick child of course is also provided.

183. The pædiatrician's most important function is his sphere of influence on child care as a whole throughout the nation. At the present time there are approximately 109 certified pædiatricians in Canada, out of 10,000 physicians. Obviously the bulk of the work must be and will be done by the general practitioner. In order to maintain and increase the standard of child care pædiatricians are necessary.

184. The first place in which their influence is shown is in the teaching of medical students, nurses, physicians taking post-graduate work, and public health personnel. It is felt that more time should be allotted to the teaching of pædiatrics in most medical schools. At the present time in Canada those teaching this subject do so on a voluntary basis or with a very inadequate honorarium. The percentage of their time given by pædiatricians for this purpose is considerable even in centres without medical schools.

185. The second illustration of the influence of pædiatricians is in consultation, e.g., the general practitioner has a troublesome case and seeks advice. After one consultation on this type of case the general practitioner usually is able to handle a similar case himself in the future.

186. The third influence is that directly on the public. The care given by a pædiatrician to his own patients influences the type of care sought by the neighbours of these patients. Most of the activities of the public health service with regard to child welfare are carried out following the advice of pædiatricians, either directly or indirectly. Public addresses, broadcasts and articles in the press by pædiatricians have their influence on the public demand for better child care.

187. The next important function of the pædiatrician has been leadership in research in child care and in nutrition, and also in the early and careful application of discoveries made in the other fields of scientific investigation. Many of the present day routine procedures which are accepted as commonplace were discovered or applied by pædiatricians. Of these the following are mentioned:

1. The general pasteurization of milk.
2. The prevention of rickets and scurvy in particular, and of all other deficiency diseases, e.g., tetany, goitre, anæmia, xerophthalmia, hæmorrhagic disease of the newborn, etc.
3. Prophylactic immunization, e.g., diphtheria toxoid, pertussis vaccine, smallpox vaccination, etc.
4. Practical and safe infant feeding—better preparation and quality of feeding.
5. The determination of the nutritional needs of the child, the observation and correction of defects and the regular supervision by health examination.
6. The feeding of the pregnant woman and its effect on the unborn infant.
7. Treatment of acidosis and dehydration.
8. At present there is great interest in child psychology and growth both mental and physical.
9. Use of tuberculin test and preventorium care for detection and arrest of early tuberculosis.
10. Better care and study of rheumatic fever in its incipient and early stage.
11. Treatment of congenital syphilis.
12. Study and application of the Rh factor in the blood.

188. As a result of these measures introduced by pædiatricians and the influence of pædiatric teaching in its widest sense, there has been a great reduction in infant mortality. In Montreal the figures for 1914, which was just the beginning of pædiatric influence, were 196 deaths within the first year of life out of every 1,000 babies born alive. The rate for 1942 was 58 per 1,000 living births. The corresponding figures for Toronto were 111 and 37, and for Vancouver 71 and 30.

189. An attempt has been made to find the percentage of children cared for by pædiatricians. The survey was made by the following method. Each certified pædiatrician was asked to report how many individual children under the age of 15 he saw in his private practice in 1943. He was also asked to state at which hospitals he was a member of the pædiatric staff and for which social agencies he acted as a pædiatrician. By writing the hospitals and social agencies and asking them to give us the number of children under 15 that were under their care either as In- or Out-patients, and a list of the physicians in charge of these children, we were able to determine the number of patients under the care of pædiatricians. Allowance was made for physicians on the staffs who were not certified pædiatricians. For example, if 1,000 children were under the care of 10 physicians, 8 of whom were pædiatricians, only 800 children were taken as being under the care of a pædiatrician. This survey revealed that more than 287,000 Canadian children came under the care of pædiatricians in 1943. This figure is lower than is actually the case, as nine certified pædiatricians and approximately 25 hospitals and institutions have not as yet submitted their figures. There were approximately 3,250,000 children under 15 years in Canada in 1943.* Therefore more than one-

* This estimate was made by the Dominion Bureau of Statistics (Vital Statistics Branch).

twelfth of all the children in Canada were treated by paediatricians in 1943.

190. From figures obtained from Dr. J. A. Hannah of the Associated Medical Services Inc. of Toronto, 50% of the families participating in this service in which there are children, have them under the care of a paediatrician, as nearly as could be estimated. This procedure necessitates their paying an extra fee personally to the paediatrician in addition to the amount allowed by the Associated Medical Services for such care. Obviously in any health insurance scheme the public will demand paediatric care if it is available in their locality.

191. As a result of a survey of Canadian paediatricians, ordinary paediatric care as carried out at present, consists in the following:

During the first year.—Newborn period in hospital, 1 to 3 visits; office visits for examination and feeding regulation at 1, 2, 4, 6, 8, 10, 12 months. Immunizations are carried out on regular health visits with additional visits where necessary, e.g., diphtheria toxoid is given at 6, 7 and 8 months, and pertussis vaccine at 10, 11 and 12 months, or the two combined at 6, 7 and 8 months.

In the second year.—health supervision and diet regulation visits are made at 15 mos., 18 mos., and 2 years. Vaccination is done at one of these. *After this period,* health examinations are carried out twice yearly. Repeat diphtheria toxoid and other tests and immunization procedures as indicated are given. These visits are particularly valuable in the detection of defects and in picking up incipient disease. Behaviour problems and emotional disturbances constitute a major problem in the preschool and adolescent child. The problem of adolescent supervision is extremely important. The fees obtained at present for this service are \$5 to \$10 for newborn care, \$3 to \$5 for office consultations and \$2 for toxoid injection alone when no examination is made. Home visits vary from \$4 to \$5. This service also includes innumerable 'phone calls for which no charge is made. We feel that there are many more 'phone calls per paediatric patient than in any other type of patient. A great proportion of the satisfaction of the public receiving adequate paediatric care lies in the fact that they are able to obtain advice about a child at any time from someone they know and in whom they have confidence and they are happy in the knowledge that they are obtaining the best care that science can afford at the present time. Unless one has had thorough training in paediatrics, the detail and time that is necessary to provide this care often proves difficult.

192. In any plan for health insurance, paediatric care (i.e., the care given to the patient coming directly to the paediatrician) modelled on that now practised should be provided for if the plan is to be compulsory and inclusive of any large portion of the population, for the following reasons:—

1. Whether provided for or not, a large proportion of the public will demand it whether the paediatrician is adequately recompensed or not. This has proved to be the case with certain voluntary schemes now in operation.

2. Should the specialty of paediatrics be put on a straight consulting basis it will discourage the number of young physicians entering the field, and in a few years the standard of child care will drop. As a result the teaching of paediatrics will suffer and child welfare will be set back.

3. Special consideration regarding fees for paediatric care should be given because of (a) the length of study necessary to become a paediatrician, (b) the type of care given and demanded requires special training, and devotion of time that cannot be rendered unless the

physician has the qualifications required for certification as a paediatrician by the Royal College of Physicians and Surgeons of Canada, and (c) all paediatricians whether under health insurance or otherwise will be required to give voluntarily of their time to the teaching of nurses, house physicians, medical societies, public addresses, etc., all of which is of indirect benefit to the health of the child.

193. It is understood that in paediatrics as in other specialties, consultations will be provided for in any health insurance plan.

All of which is respectfully submitted.

H. S. LITTLE, M.D., C. E. SNELLING, M.B.,
President, Canadian Society for the Study of Diseases of Children. *Chairman, Special Committee.*

A long and interesting discussion ensued after the reading of this report, in which representatives of all the Divisions expressed the opinion that there is a very definite need in the Association for a field secretary who would be available to go from Province to Province, when invited to do so, to assist the Divisions with their problems. The following resolution was passed:

THAT, whereas each province is responsible for its own health services;

AND WHEREAS it is already evident that each province is setting up a different type of service which in some cases may tend to subordinate the best interests of health service in the various provinces;

THEREFORE, be it resolved that this Council of the Canadian Medical Association be requested to appoint a liaison officer whose duty would be to move from province to province to develop public relations and secure a better cohesion among the various provincial Associations.

The Executive Committee was instructed to take steps toward the implementation of this resolution.

SUPPLEMENTARY REPORT OF THE COMMITTEE ON ECONOMICS

SOME BASIC REQUIREMENTS FOR THE IMPROVEMENT OF HEALTH SERVICES

The Nucleus of the Committee on Economics has been giving considerable thought to the method of approach to the problem of improved health services. After much discussion they have set down certain fundamental things that should be considered as basic requirements at the present time.

The following seven points are set forth as worthy of discussion in formulating a foundation upon which a health service might be built:

1. Preventive program
2. Provision for medical and allied services for remote areas
3. Diagnostic services
4. Hospitalization
5. Full coverage for the welfare group
6. Educational program (a) the public
(b) the profession
7. Improved standards of living

1. PREVENTIVE PROGRAM

The basic requirements for an adequate community health program would include:

- (a) Prevention of such acute communicable diseases as lend themselves to control by immunization.
- (b) Control of chronic communicable diseases, including diagnostic facilities and treatment, *e.g.*, tuberculosis and venereal diseases.
- (c) Supervision of environmental sanitation, including water supplies, sewage and refuse disposal, adequate housing, etc.
- (d) Adequate supervision of food and food-handling establishments.
- (e) Provision for school health supervision (both elementary and secondary schools).
- (f) The ensuring of adequate pre-natal, post-natal, infant and pre-school health supervision.

2. REMOTE AREAS

It is recognized that more complete services should be provided for people living in remote areas. A health program should provide for the payment of a subsidy when necessary to ensure the location of physicians, the provision of adequate district nursing services, the establishment of out-post hospitals and nursing stations where needed, and the provision of adequate diagnostic arrangements and a health education program as considered under items (3) and (6).

3. DIAGNOSTIC SERVICES

A primary need for the improvement of health services in Canada is the provision of adequate diagnostic facilities throughout the country. No patient should be unable to obtain the benefits of modern highly developed diagnostic procedures because of geographic inaccessibility or lack of financial means. This does not mean the unnecessary duplication of diagnostic centres or wasteful decentralization of skilled professional and technical personnel. The methods of making these services available, particularly to doctors and patients in rural areas should be given serious study.

4. HOSPITALIZATION

- (a) *What would be necessary for adequate hospitalization?*

Essential features would be:

- i. Adequate hospital accommodation—
 - active general hospitals
 - chronic hospitals
 - convalescent hospitals
 - special hospitals—tuberculosis
 - mental
 - communicable disease
- ii. Provision for capital construction, with the governments bearing their fair share of the costs.
- iii. Adequately trained personnel—
 - administrators—
 - (a) professional
 - (b) lay
 - nurse supervisors
 - training school instructors
 - general duty nurses
 - radiologists and pathologists
 - laboratory and x-ray technicians
 - dietitians
- iv. Provision of satisfactory diagnostic services.
- v. Adequate provision for payment to the hospitals of sufficient amounts to meet operating costs.
- vi. For rural or isolated areas special arrangements might be necessary, such as small emergency and maternity outpost hospitals, travelling diagnostic clinics, aerial ambulances, etc.

- (b) *Number of beds required*

Without adequate beds for the hospitalization of patients, it would be impossible to provide the benefits authorized under any general plan for health care. At the present time the hospital situation across Canada is very serious:

General (Active) Hospitals—definite shortage in all but a few communities—serious in most cities.

Hospitals for chronically ill—very short everywhere; most areas without accommodation.

Convalescent Hospitals—whole provinces are without proper convalescent accommodation. Properly equipped and organized convalescent hospitals in two cities only.

Tuberculosis Sanatoria—shortage of beds in nearly all provinces.

Mental Hospitals and Institutions for Feeble-minded—serious shortage everywhere. *Reception hospitals*—badly needed in most large centres; also need more *Psychiatric annexes* in general hospitals.

Estimates of the number of active hospital beds required vary in different provinces and in different areas. The number of active beds required per thousand depends upon several factors: the industrialization of the area, housing conditions, hospitalization legislation or voluntary plans, amount of work referred to local doctors and transportation facilities. Especially important is the accommodation available in other hospitals for the chronically ill or the convalescent and in homes for the senile. Some provinces have twice as many active beds as have others (*e.g.*, Alberta and British Columbia), yet are still short. Some cities run as high as 15 to 18 public beds per thousand of population yet are still short. Undoubtedly under any system that would provide hospitalization without immediate cost to the patient, the requirement in every province would rise steeply.

A broad estimate of the need of hospital beds in Canada might be:

	Present No.	Total present need	Total needed 10 years hence
Active	45,609 (public)	55,000	65,000
Chronic	2,632	13,500	16,000
Convalescent ..	900	2,300	2,500
Tuberculosis ..	12,060	19,560	19,560
Mental	38,928*	50,000	55,000
Communicable diseases	1,437†	3,000	3,000
Totals	101,566	143,260	161,060

* 43,443 in residence, December 31, 1942.

† There are only 15 isolation hospitals in the whole of Canada.

- (c) *Costs*

Most hospital consultants are very hesitant to make any specific estimate of the cost of construction or even of maintenance in the immediate future.

Construction costs are fluctuating at the present time with only a modest drop anticipated in the postwar years. The best informed opinion at the present time would suggest that the average cost of active hospital construction should be placed at about \$5,000 per bed. It is quite likely that much construction will be done at lower figures, particularly if only a wing is being built or a small building of less durable construction. On the other hand standards of construction are constantly rising and some of our large-scale construction with

extensive kitchens, boiler plants, residences, outpatient clinics, etc., may reach \$8,000 to \$10,000 a bed. A better method of calculation is on the cubic foot cost basis, formerly 55 to 65 cents—now reaching 80 to 85 cents.

The construction of hospitals for chronic or incurable patients, for tuberculosis patients and for mental patients should cost less, but, considering the services to be provided, it is estimated by competent architects that these would average \$4,000 a bed. The modern, well-equipped convalescent hospital will probably cost as much.

On the above bases, the cost of new hospital construction required in Canada would be as follows:

	Immediate expenditure	Additional within 10 years	Total
Active ..	\$46,955,000	\$50,000,000	\$96,955,000
Other ...	\$129,212,000	\$31,200,000	\$160,412,000
Grand total			\$257,367,000

This total would be spread over the next ten years; however, at the end of that period it is likely that further expansion, though at a reduced tempo, would be needed. In addition to a continued increase in use, heavy replacements would be necessary for many of our present buildings are fast becoming obsolete.

NOTE: The above figures represent the costs of the construction that would be needed to fully meet our hospital requirements. In actual experience the amount of construction undertaken would probably fall short of this total. The actual construction now contemplated for active hospitals does approximate the figures given above, but there will probably be a considerable lag in the construction of chronic, convalescent and communicable diseases hospitals, and the construction of tuberculosis and mental hospitals will probably fall short of the number of beds stated above as really necessary.

As for costs of operation, these are likely to rise sharply with the present labour unrest and much equipment to be replaced. Reported costs seldom include all factors. Also it is doubtful if any province in Canada, except one now completing an intensive two-year study, has really accurate figures at the present time as to actual costs. This province, despite uniform accounting returns for many years, now finds many variations in the interpretations made of many details as a result of this painstaking survey, done by a joint committee of the hospital association and the government with a cost to the former of some \$9,000. In that province the average per diem cost of operation for 111 hospitals (1944) has been found to be \$4.42 per patient per day, with certain large public hospitals having operating costs as high as \$6.25 per patient per day and a smaller one calculated at \$6.58. Frills and private features are extra.

Presuming a conservative national average of \$4.00 per patient-day for active hospitals and allowing for a 65% average occupancy (which is the accepted average to meet peak demands) the annual cost of maintenance for 55,000 beds would be \$52,195,000 and for 65,000 beds (10 years hence), \$61,685,000. These figures may well be much higher.

Estimating \$2.00 for hospitals for chronics and incurables and a 90% occupancy, the cost of operation for 13,500 beds would be \$8,869,500 and for 16,000 beds ten years hence, \$10,512,000.

As for convalescent care, present costs vary from \$2.00 to \$3.25 depending upon the extent and quality of the rehabilitation care given. Presuming we are dealing with institutions properly equipped to provide physiotherapy, occupational therapy, etc., at an average cost of, say, \$3.00 and counting on an average occupancy of 80%, the annual operating cost for 2,200 beds would be \$1,927,200, and for 2,500 beds, \$2,190,000.

Summary of operating costs:

	If present needs are met	To meet needs 10 years hence
Active hospitals	\$52,195,000	\$61,685,000
Chronic and incurable patients	8,869,500	10,512,000
Convalescent hospitals ...	1,927,200	2,190,000
Add:		
Tuberculosis sanatoria ...	23,203,050	23,203,050
Mental hospitals	28,387,500	31,116,250
Communicable disease hospitals	1,368,750	1,368,750
Total	\$115,951,000	\$130,075,050
(These figures do not include the cost of hospitalizing war veterans under the D.V.A.)		
Amortizing construction costs over 10 years, and	\$ 25,736,700	
Averaging operating costs over 10 years	123,013,025	
		\$148,749,725 annually

NOTE: As mentioned above, the actual construction undertaken even under favourable circumstances will probably lag with respect to several of the above types of hospitals. Therefore, in actual experience, the cost will be reduced proportionately. It should be noted also that under a plan of health insurance mental care may not come under the plan.

(d) Procedure

In approaching this tremendous problem of providing hospital facilities, two initial steps would be of primary importance:

- A thorough survey of present and future needs in each province, (if not already completed);
- Agreement on a fair apportionment of the costs of construction which should be borne by the municipalities and the province, and assurance respecting adequate payment for the care of non-pay patients.

5. FULL COVERAGE FOR THE WELFARE GROUP

Complete health service, both in and out of hospital, should be provided for the welfare group (indigents, mothers' allowance recipients, blind, old age pensioners). A partial plan has been put into operation in Saskatchewan (January 1, 1945). The amount set aside by the government is \$9.50 per person per year for medical services. In another province, a partial scheme is in operation, that is, home, office and confinement service. Various attempts have been made to have this service extended but to date they have not met with success.

6. EDUCATIONAL PROGRAM

An educational program would include:

- Education of the public regarding individual responsibility, full preventive services, etc.
- Education of the profession:
 - Undergraduate—adjustment in curriculum to stress preventive program.
 - Postgraduate—refresher courses; training in special fields of medicine; etc.

7. IMPROVED STANDARDS OF LIVING

Fundamental to any plan for improved health services would be the implementation of our second Principle:

"Inasmuch as the health of the people depends to a great extent upon environmental conditions under which they live and work, upon security against fear and want, upon adequate nutrition, upon educational facilities, and upon the opportunities for exercise and leisure, the improvement

and extension of measures to satisfy these needs should precede or accompany any future organization of medical service. Failure to provide these measures will seriously jeopardize the success of any Health Insurance plan."

VOLUNTARY PLANS FOR PREPAID MEDICAL CARE

It was agreed that voluntary schemes are not a complete answer to the problem of improved health services although it is recognized that there is a demand for such schemes by a certain section of the population. The medical profession is exploring these schemes in several of the provinces.

Approved.

In the discussion which followed the presentation of the Supplementary Report, the opinion was expressed that the Association should endeavour to formulate a more definite policy with regard to health insurance. The following resolution was passed:

THAT the Divisions be asked to study and report upon the enunciation of a more definite policy with respect to the subject of health insurance; and that they be requested to submit their reports to the Executive Committee at the earliest possible moment.

The opinion was expressed that, after the Divisions had been heard from, it might be advisable to call a special meeting of General Council to discuss the matter further. The Executive Committee was instructed to call such a meeting at such time and place as may seem advisable.

MEDICAL ARRANGEMENTS FOR VETERANS

The Minister of Veterans' Affairs has approved of the policy that pensioners be given access to the services of their family physician.

The Director of Treatment Services requested the Association to appoint a committee to advise the Department regarding the schedule of fees and other matters related thereto.

This report was received with satisfaction by General Council and the following resolution was passed:

WHEREAS information has been received from the Department of Veterans' Affairs that a policy has been approved which will permit veterans the free choice of their own Doctors and that the co-operation of the C.M.A. in the matter of fees for medical and surgical services is desired; AND WHEREAS the Executive Committee heartily endorses this policy and believes it is highly desirable that the C.M.A. should co-operate with the Department of Veterans' Affairs particularly in the preparation of a schedule of fees for medical and surgical services rendered to veterans, and that it is equally desirable that there should be one schedule of fees applicable in all provinces of Canada;

AND WHEREAS it is obvious that this matter should be treated as urgent;

BE IT RESOLVED—

(1) That each Division of the C.M.A. be requested to co-operate in this matter by the appointment with the least possible delay of a committee to make preliminary studies.

(2) That a special committee be formed composed of a Chairman (a member of the Executive of the C.M.A. and appointed by it) and a representative of each Divisional Committee, appointed by the respective Divisions.

(3) That this committee be convened at the earliest possible moment, in Ottawa, with instructions to prepare a schedule of fees applicable for the purposes outlined above, in all the provinces of Canada.

(4) That the expenses of this Committee be a charge against the general funds of the C.M.A.

(5) That the committee be requested to make its report to this Executive at the earliest possible date.

(6) That Dr. F. G. McGuinness be appointed Chairman of this special committee.

CANADIAN ANÆSTHETISTS SOCIETY

The application of the Canadian Anæsthetists Society for affiliation with the Canadian Medical Association was approved.

INTER-SERVICE CONFERENCE OF PSYCHIATRISTS

The following resolution was passed by the Inter-Service Conference of Psychiatrists meeting in Montreal on June 12, 1945:

BE IT RESOLVED—

That this conference goes on record as being in favour of the holding of an annual meeting of Canadian psychiatrists for the purpose of reading and discussing scientific papers, improving the standard of psychiatric practice, recommending ways of strengthening the facilities for undergraduate and postgraduate training in psychiatry, improving the integration of psychiatry with general medicine and finally for the purpose of co-operating with and strengthening the hand of the National Committee for Mental Hygiene (Canada) in its national and community work for improving mental health.

It is further resolved that, in order to implement the above resolution the Council of the Canadian Medical Association be respectfully requested to set up a Section of Psychiatry and that the Council be assured that if such a section is organized it will receive the whole-hearted support of Canadian psychiatrists who are members of the C.M.A.

It was agreed that the formation of a Section of Psychiatry in the C.M.A. be approved.

ANNUAL MEETING, 1946

The week of June 10, 1946, was tentatively set for the annual meeting in Vancouver.

It was pointed out that, due to restrictions of travel and hotel space, there is a possibility that it might not be possible to accommodate the annual meeting in Vancouver next year. Under such circumstances, it was agreed that consideration might be given to meeting in Banff.

Should the meeting be held in Banff, it will be regarded as a meeting-at-large, and the British Columbia Division will not lose its turn in the schedule of places of meeting.

OFFICERS

The following are the officers of the Association for the ensuing year:

Immediate Past President—Dr. Harris McPhedran, Toronto.
President—Dr. Léon Gérin-Lajoie, Montreal.
President-Elect—Dr. Wallace Wilson, Vancouver.
Chairman of General Council—Dr. A. E. Archer, Lamont.
Honorary Treasurer and Managing Editor—Dr. D. Sclater Lewis, Montreal.
Editor—Dr. H. E. MacDermot, Montreal.
General Secretary—Dr. T. C. Routley, Toronto.
Associate Secretary—Dr. G. Harvey Agnew, Toronto.

DIVISIONAL REPRESENTATIVES ON THE EXECUTIVE COMMITTEE

Dr. W. J. P. MacMillan, Charlottetown.
 Alternate—Dr. J. F. McNeill, Summerside.
 Dr. H. K. MacDonald, Halifax.
 Alternate—Dr. J. G. B. Lynch, Sydney.
 Dr. A. F. VanWart, Fredericton.
 Alternate—Dr. C. J. Venoit, Bathurst.
 Dr. C. A. Gauthier, Quebec.
 Dr. J. R. Fraser, Montreal.
 Dr. E. S. Mills, Montreal.
 Alternate—Dr. H. B. Church, Aylmer.
 Dr. C. J. Devins, Aurora.
 Dr. William Magner, Toronto.
 Dr. H. M. Torrington, Sudbury.
 Alternate—Dr. C. C. White, Chatham.
 Dr. F. G. McGuinness, Winnipeg.
 Alternate—Dr. W. G. Beaton, Winnipeg.
 Dr. O. E. Rothwell, Regina.
 Alternate—Dr. J. A. Valens, Saskatoon.

Dr. J. W. Scott, Edmonton.
 Alternate—Dr. F. T. Campbell, Calgary.
 Dr. G. O. Matthews, Vancouver.
 Alternate—Dr. A. H. Meneely, Nanaimo.

CHAIRMEN OF COMMITTEES

Archives—Dr. H. E. MacDermot, Montreal.
Awards, Scholarships and Lectures—Dr. Duncan Graham, Toronto.
Department of Cancer Control—Dr. William Boyd, Toronto.
Central Program—Dr. Duncan Graham, Toronto.
Constitution and By-Laws—Dr. R. I. Harris, Toronto.
Credentials and Ethics—Dr. J. D. Adamson, Winnipeg.
Economics—Dr. Harris McPhedran, Toronto.
Epidemics—Dr. T. H. Leggett, Ottawa.
Advisory Committee on Finance—Dr. D. Sclater Lewis, Montreal.
Hospital Internships—Dr. A. K. Haywood, Vancouver.
Advisory Committee to Department of Hospital Service—Dr. W. H. Delaney, Quebec.
Industrial Medicine—Dr. H. Graham Ross, Montreal.
Laboratory Technicians—Dr. James Miller, Kingston.
Vice Chairman—Dr. George Shanks, Toronto.
Legislation—Dr. C. J. Veniot, Bathurst.
Maternal Welfare—Dr. A. Nash, Victoria.
Medical Education—Dr. O. W. Niemeier, Hamilton.
Membership—Dr. W. G. Beaton, Winnipeg.
Meyers Memorial—Dr. George Boyer, Toronto.
Nutrition—Dr. F. F. Tisdall, Toronto.
Pharmacy—Dr. V. E. Henderson, Toronto.
Post-Graduate—Dr. Duncan Graham, Toronto.
Rehabilitation—Dr. L. C. Montgomery, Montreal.
Public Health—Dr. Vance Ward, Montreal.

All of which, on behalf of General Council of the Canadian Medical Association, is respectfully submitted.

T. C. ROUTLEY,
General Secretary.



